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Factors that Influence the Professional Updating of Teachers

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FACTORS THAT INFLUENCE THE PROFESSIONAL UPDATING OF TEACHERS

by

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This dissertation, submitted by Paul Kasper Johnson in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Signature Paul K Johnson

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ABSTRACT

In this study, the Expectancy Theory of Motivation was applied to the updating behavior of experienced elementary teachers in North Dakota. The purpose of the study was to examine the perceptions of experienced elementary teachers at certain career levels, ages, experience levels, grade levels, and district sizes regarding the relationships between participating in various professional development activities and remaining professionally up-to-date (expectancy beliefs) as well as attaining desired outcomes and rewards (instrumentality and valence beliefs). A secondary purpose of the study was to investigate the applicability of the expectancy model for predicting past and future participation in updating activities by teachers in the sample.

This study included a sample of full-time kindergarten through sixth-grade classroom teachers in North Dakota who had at least three years of experience. Data were collected by requesting principals of randomly selected elementary schools in North Dakota to request teachers with the required characteristics to complete the survey instruments. The survey instruments included the Valence, Instrumentality, and Expectancy (VIE) Survey, developed for this study, and the *Career Awareness Index* (CAI), developed by Donald DeMoulin. A total of 243 usable surveys were collected. The data were analyzed using *t* tests, analysis of variance, Pearson Correlation Coefficients, and Scheffé Multiple Contrast.

Teachers in this study preferred university coursework, workshops, and conferences for updating activities although there were significant differences according to age, experience, grade level, and career level. Teachers in this study preferred intrinsic,

especially psychic rewards, to extrinsic rewards although there were significant differences according to age, experience, grade level, and career level. Older teachers, more experienced teachers, teachers at upper elementary grade levels, and teachers in career levels of low productivity generally were less motivated to participate in updating activities. The study demonstrated that the expectancy model as a whole formula as well as its components are predictive of past and future participation in updating activities. The findings from this study will help persons and agencies responsible for the professional development of teachers to assist and motivate teachers to update their professional skills and knowledge.

CHAPTER I

INTRODUCTION

In April 1991, President Bush launched *America 2000: An Education Strategy*, his administration's initiative in school reform (Miller 1991). Although this is the newest of reform proposals, it is only the latest in a series of blueprints for reforming America's schools that were unleashed by *A Nation at Risk: The Imperative for Educational Reform* in 1983 (National Commission on Excellence in Education 1983). *A Nation at Risk*, written by a "blue ribbon committee" appointed by Secretary of Education Terrell Bell, sounded an alarm about serious shortcomings in the nation's schools. Whether *A Nation at Risk* verbalized misgivings people already had about schools or created those misgivings, it contributed to a national debate about the quality of schools and what to do to improve that quality.

It is interesting to note how the role of the teacher has been viewed in some of the more prominent reform documents. In *A Nation at Risk* the teacher was only mentioned as one of the "tools at hand" and its "findings regarding teaching" were all negative (National Commission on Excellence in Education 1983). Recommendations centered around raising the standards for entry into teacher preparation programs, increasing the incentives for entry into the teaching profession, and finding ways to allow personnel without teacher preparation to teach in schools. The emphasis was on regulation and standardization.

Later reform reports, of which only a few will be mentioned here, viewed the condition of teaching more sympathetically. The dichotomy between the late twentieth century demands on teachers and the nineteenth century conditions of present-day teaching

was a theme of *Tomorrow's Teachers* (The Holmes Group 1986). Teachers were seen as victims of an organizational structure that was a holdover from a time when the nation's education system was gearing up to educate a rapidly expanding population. This report called for the professionalization of teaching by creating three levels of teaching that have varying degrees of responsibility and require different levels of preparation--in other words, a career ladder.

Teachers were viewed as having a more expanded role in other reports. In the Carnegie report, *A Nation Prepared: Teachers for the 21st Century*, the writers stated that the key to the success of America's educational system was in "creating a profession of well-educated teachers prepared to assume new powers and responsibilities to redesign schools for the future" (Task Force on Teaching as a Profession 1986, p. 2). This report recommended that teachers take an active role in bringing about school reform.

As the reform movement matures, educational thinkers are seeing that it is not any one element that is, in and of itself, a cause of the ills of the nation's schools. Many now believe that the organizational structure is inadequate for the demands of the late twentieth century (David 1991; Finn 1990). Hence, the latest theme in the reform movement is school restructuring. According to David (1991), restructuring "requires all parts of the system to change, from students and teachers up through the myriad bureaucratic layers to the nation's capitol" (p. 11).

All reform initiatives recognize the importance of the teacher to any fundamental change in the schools. However, they differ substantially concerning the role of the teacher. As discussed earlier, the views range from a rather narrow perspective of teachers as those who merely deliver the curriculum to a broader conception of teachers as participants in the governance of the school and school district.

There are two related themes that emerge in the current literature about teaching. The first theme defines the teacher as a professional (Lieberman 1988). This conception of

teaching has two parts: (1) that the education of students needs to have an orientation toward problem solving rather than memorization which would require a much more skilled and knowledgeable teaching force (Devaney and Sykes 1988) and (2) that teachers should have more control over the areas of membership in their occupation, the structure of the teaching career, and conditions of the workplace (Little 1988).

The second theme that is evident in recent writing about the occupation of teaching is the concept of teacher empowerment (Maeroff 1988). Teacher empowerment is related to the professionalization of teaching but also has to do with how teachers perceive control over their work lives and status. Maeroff believes that empowering teachers involves (1) boosting teachers' status to combat the low esteem characterizing classroom teachers, (2) making teachers more knowledgeable so they can exert more authority, and (3) allowing teachers more access to decision making.

There is a growing realization that an expanded role for teachers is necessary if school reform is going to come about (Brandt 1991; McDaniel 1991). This expanded role has elements of the themes of empowerment and a professional teaching force. Reform or restructuring of schools will require input from teachers and will require teachers who are willing to invest significant amounts of time and energy in the process. These committed people will require professional status and compensation. The scholars who study the condition of teaching are convinced that one of the prerequisites to this expanded role is helping teachers become more knowledgeable (Crawford 1991; Lieberman 1988; Maeroff 1988).

In order to gain the knowledge to become involved in a meaningful way in school reform through school restructuring, the support of the building principal is helpful. The National Association of Elementary School Principals (NAESP), in their publication *Principals for 21st Century Schools*, suggests that the role of the principal is changing to a leader of leaders rather than a manager of employees (NAESP 1990). Sergiovanni (1987),

one of the leading authorities on educational leadership, recognized that this type of leadership does not necessarily diminish the power of the principal:

> Highly successful leaders practice the principle of power investment: They distribute power among others in an effort to get more power in return. But their view of power investment is sophisticated; they know it is not power over people and events that counts but, rather, power over accomplishments and over the achievement of organizational purpose. To increase organizational control, they recognize that they need to delegate or surrender control over accomplishments. They understand that teachers need to be empowered to act--to be given the necessary responsibility that releases their potential and makes their actions and decisions count (p. 121).

Principals who can practice this principle of power investment move the school forward by helping each person achieve personal and organizational goals.

One way that teachers achieve personal and organizational goals is through professional development. As teachers refine and update their skills and knowledge, they gain confidence as individuals. Principals must support teachers as they develop professionally and personally.

One of the ways that principals do this is "to understand and respond to the learning needs of each faculty member" (NAESP 1990, p. 18). Blackman (1989) discusses some of the challenges the principal faces as he or she attempts to support the professional development of teachers: (1) getting to know staff members as persons and understanding the basis for each person's functioning as a professional person; (2) using this collective knowledge and understanding for designing, collaboratively, a professional development agenda; (3) creating a climate in which a continuing agenda is the norm; and (4) serving as a key link between the building and the school district.

Part of understanding the basis for each person's functioning as a professional person involves understanding what factors influence that person's continued learning and growth. Some of these factors may be *developmental* (Krupp 1987); *career stage* (Burden and Wallace 1983; Glickman 1985); or *perceptions about what is facilitating, stimulating, meaningful, or useful* (Holly 1989; Watts 1987).

Oddly enough, with all the interest in staff development, few studies have been devoted to the subject of what motivates teachers to stay up-to-date (Koll, Herzog, and Burke 1989; Wright 1985). In business and industry, on the other hand, many studies have addressed the problem of encouraging professionals in technical fields to stay up-to-date (Willis and Dubin 1990).

One theory of motivation that has been used to study the motivation of engineers to stay technically up-to-date is expectancy theory (Farr et al. 1984). Expectancy theory as refined by Vroom (1964) has three elements. The first element, *expectancy*, is the belief that expending personal effort will result in attaining some level of performance or knowledge state. The second element in Vroom's theory, *instrumentality*, refers to the belief that attaining a particular performance level or knowledge state will affect rewards or outcomes. The third element, outcome *valence*, is the desire for or aversion to some reward or outcome. Expectancy theory predicts that the three factors--expectancy, instrumentality, and valence--combine in a multiplicative fashion to influence a person's motivation toward some course of action. Farr and Middlebrooks (1990) explain the advantages for using expectancy theory to predict behavior:

> Expectancy theory does not attempt to specify the individual characteristics that affect motivation or the outcomes people seek as a result of their behavior. It only describes the process by which an individual is motivated. This focus on process of motivation gives expectancy theory an advantage over motivational theories that prescribe that everyone should be motivated to achieve similar outcomes. Thus, expectancy theory can easily account for individual differences, while not ruling out the possibility that certain outcomes or rewards may not be important for many. . . . Therefore, expectancy theory assumes that choice behavior is a subjective process, but one that is systematic at the level of the individual--meaning that the individual always chooses that alternative that he or she expects to yield the maximum payoff (p. 198).

Expectancy theory is often expressed as the following equation: Motivation equals Expectancy times the sum of a combination of the Valence (desirability) of an outcome and the Instrumentality (availability) of the same outcome.

The research conducted in business and industry can provide a starting point for educational research, such as studying how to encourage teachers to stay up-to-date, even though there are significant differences in the two fields. For instance, the concern for productivity and profit that is the goal of most research and theory in business and industry does not translate well to education. In the field of education, service to students is the goal of research and theory. What the two fields have in common is that they achieve their goals through people and finding ways to make those people more productive benefits education as well as business.

Need for the Study

It is an axiom of organizational theory that the most important resources of an organization are its human resources. This is especially true in schools. As the public demands a careful accounting of resources, school leaders need to keep the human resources in the schools, especially the teachers, as productive as possible.

There are four main reasons why teachers need to stay up-to-date in their skills and knowledge if they are to stay productive. The first and most important reason is to serve their students well. Devaney and Sykes (1988) make the compelling argument that students need a very different kind of education if they are going to thrive in today's workplace. According to these writers, the movement toward higher order thinking skills from straightforward, simple acquisition of facts is going to require teachers to accomplish the following:

1) Help students make complex constructions of knowledge
2) Require students to tackle ill-structured problems
3) Prepare students to organize and monitor their own learning
4) Stoke problem solving with highly specific prior knowledge
5) Emphasize collaborative and situation-specific learning
6) Set students to work on tasks that incorporate skills (p.19)

Assisting students in this kind of learning will obviously require much training for many, perhaps most, teachers.

Secondly, staying up-to-date has become necessary for all professionals because of the knowledge explosion and the speed with which technological changes occur (Willis and Dubin 1990). For example, Dede (1989) believes that "evolving information technologies will transform the nature of work, and that this transformation will in turn affect the design and content of the school curriculum" (p. 23). A recent article in *Time* observes that computers have not lived up to their promise to transform schools (Bjerklie 1991). The article notes that one reason is that teachers have not learned how to make the best use of computers and related technology. Those who have, the article says, "have had to go through a painful process of self-education, supplementing in-service classes with seminars, night schools, and computer clubs" (p. 49). As with other new teaching tools, before the teachers can be successful at utilizing technology with students, they need to make a significant effort to acquire new skills and knowledge themselves.

The third reason it is important for teachers to stay up-to-date in knowledge and skills is to be a part of restructuring and reform efforts. Teachers who are current in educational innovations and methods are more likely to be given a role in helping to determine educational policies (Crawford 1991). David (1991) suggests that a roadblock to change is the absence of knowledge and skills to do one's job differently.

Finally, the average age of teaching staffs is increasing as baby-boom cohorts pass through middle to old age. North Dakota statistics for the 1993-94 school year show that the average age is 42.7 and that the average years of experience is 15.1 (Torgeson 1994). Evans (1989) summarizes national statistics as follows:

> The teaching force is now composed mainly of people in middle to late career who have been teaching in their current school for most of their professional lives. Their average age is approaching 50. Seventy-five percent have been teaching for at least 10 years; fifty percent, for 15 years or more. Fifty percent have taught in only one or two schools (p. 10).

The challenge for school districts and principals is no longer to orient and socialize new teachers; the challenge now is to upgrade the skills and knowledge of teachers who received their undergraduate degrees years ago.

Related to the problem of upgrading skills and knowledge is research that suggests that any teaching faculty contains teachers at many different stages of personal and career development (Krupp 1987; Levine 1989). Teachers at different stages of their career need professional development opportunities geared to individual career stages (Burden and Wallace 1983; DeMoulin and Guyton 1989; Glickman 1985; Levine 1989). The needs of teachers at the most productive stage of their career may be different from those of a person starting to lose interest in teaching. The teacher who is totally ineffective probably has much different needs than teachers at the previously described career stages (DeMoulin and Guyton 1989).

Even though the need for continued updating of knowledge and skills may be obvious to school leaders, there are many factors which prevent teachers from staying current. Among these factors are (1) work responsibilities that are already overwhelming with too many students and a lack of resources (McLaughlin et al. 1988), (2) the low status of the profession and teachers feeling little need to excel if society has such a low opinion of their worth (Maeroff 1988), (3) family considerations taking up what little time is left after school responsibilities (Krupp 1987), or (4) teachers perceiving that the professional development activity available to them is not appropriate for their needs (Wright 1985).

What then do principals do to encourage teachers to engage in updating activities? According to the Expectancy Theory of Motivation, the teacher needs to believe that the activity will increase his or her knowledge and/or skills. Secondly, the teacher has to believe that possessing current professional knowledge and skills can result in desired outcomes and rewards.

Identifying which professional development activities teachers believe will result in updating their skills and knowledge is a first step. School districts are wasting their time and money promoting those professional development activities that the majority of teachers see as nonproductive. The second step is for principals to know what outcomes are valued by teachers in order to try to make those outcomes available. And finally, if teachers do not believe that any important outcomes will result from being up-to-date in teaching methods, it is unlikely that they will feel any inclination to upgrade their skills and knowledge.

Research has suggested that there is a relationship between the career stage and the type of professional development activity that is most appropriate (Burden and Wallace 1983; DeMoulin and Guyton 1989). Principals need to know what teachers, at different career levels, value as incentives. They also need to understand the perceptions of teachers, at different career stages, about being able to acquire those desired incentives through updating.

Purpose of the Study

This study will attempt to determine the perceptions of experienced elementary teachers, at three career stages, regarding the relationships between participating in various professional development activities and remaining professionally up-to-date. It will also attempt to determine the perceptions of the same sample regarding remaining professionally up-to-date and attaining desired outcomes and rewards.

Delimitations

The study was delimited to the following:

1. North Dakota elementary school teachers who met the following criteria: (1) They were full-time K-6 elementary teachers at the time of the study, and (2) they had been teaching for at least three years.

2. The perceptions of full-time K-6 elementary teachers in North Dakota regarding the relationships between participating in various professional development activities and staying up-to-date.

3. The perceptions of full-time K-6 elementary teachers in North Dakota regarding the relationships between staying up-to-date and attaining desired outcomes and rewards.

Assumptions

The following assumptions were made in designing this study:

1. All full-time elementary teachers participated in professional development activities.

2. All teachers desired certain outcomes and rewards as a result of participating in professional development activities.

3. Teachers' responses to questions on the *Career Awareness Index*, the Valence, Instrumentality, and Expectancy Survey, and the demographic survey were open and honest.

4. The *Career Awareness Index* validly and reliably determined the teacher's career level.

5. The Valence, Instrumentality, and Expectancy Survey validly and reliably measured teachers' perceptions of valence, instrumentality, and expectancy.

Definitions

For this study, the following terms and their definitions are pertinent:

Professional competence: The ability to function effectively in the tasks considered essential within a given profession (Willis and Dubin 1990).

Professional updating: Information-seeking and educational activities, both formal and informal, directed toward the enhancement of professional competence (Willis and Dubin 1990).

Professional development: A wide variety of opportunities for growth in knowledge and skills within the education profession (The Regional Laboratory for Educational Improvement of the Northeast and Islands 1987).

Staff development: A range of activities embracing more than inservice education. One aspect of staff development involves an array of endeavors that determines who serves, where, and when. The other aspect of staff development includes at least two types of training: inservice education and advanced preparation (Harris 1989).

Inservice education: Any planned program of learning opportunities afforded staff members of schools for the purposes of improving the performance of personnel in already assigned positions (Harris 1989).

Career development level: Any stages or levels of career development that most teachers pass through (Burden 1980; DeMoulin 1991; DeMoulin and Guyton 1989; Glickman 1985). Teachers experience similar career and work concerns during these stages or levels. The four career levels are described as follows (DeMoulin 1991):

> Operational: This level contains a slightly higher ratio of positive to negative elements with stress playing an active but confined role; hence efficacy levels are good, being slightly above norm. Conditions within this level represent an individual who is either new to the work force, an individual who has had a position change, or an individual who perceives acceptable levels of performance, but is hindered by extraneous factors.
>
> Developmental: A large quantity of descriptors in ths level indicates an abundance of positive elements with individuals perceiving high efficacy. This level portrays optimum conditions that relate to a heightened awareness of desired attributes, attitudes, or skills necessary for high efficacy. This level also signifies preferred combinations of performance and stress.
>
> Transitional: This level begins the transformation of the ratio between positive and negative attributes as the ratio bends towards the negative side. Hence, attributes of stress become noticeable as the individual can be characterized by emotional adjustments concerning efficacy or by a decline in job satisfaction. When this

transformation is complete, less motivation for job completion, job fulfillment, or personal achievement may be the less than desired outcome.

Devocational: This level represents hard-line stressors that can be synonymous with burnout. Conditions are therefore favored for an individual to exhibit symptoms associated with physical, emotional, or mental exhaustion. Individuals associated with this level are at high risk of burnout. Performance decline is therefore most likely to result from repeated emotional stimulation associated with intense involvement with people over an extended period of time. This level is characterized by inward or outward expressions involving negative attitudes toward work, life, self, or other extraneous factors. Attributes of stress have become the dominant force (p. 3).

Extrinsic rewards: Objective rewards in that they exist independently of the individual who occupies the job. These are usually thought of as "earnings" attached to a job and involve money income, status, and power over others.

Intrinsic rewards: Subjective valuations made in the course of work. Their subjectivity means that they can vary from person to person. Examples of intrinsic rewards are personal satisfaction or greater effectiveness as a teacher.

Expectancy: The belief that expending personal effort will result in attaining some performance level or knowledge state.

Instrumentality: The belief that attaining a particular performance level or knowledge state will affect rewards or outcomes.

Outcomes: Something that an individual acquires as a result of an action or activity. Only positive outcomes were used for this study. Rewards and incentives may be substituted for outcomes in this study.

Reward: Pleasure or satisfaction gained from an activity or experience.

Incentive: The contemplation of access to a reward that leads people to modify their behavior in order to secure rewards and avoid punishment (Mitchell, Ortiz, and Mitchell 1987).

Valence: An individual's desire for or aversion to some outcome.

Research Questions

The following research questions were investigated in the study:

1. In what ways do experienced elementary teachers perceive that various professional development activities contribute to remaining up-to-date in skills and knowledge related to teaching?

2. What are the most desired outcomes of experienced elementary teachers for being up-to-date in skills and knowledge related to teaching?

3. What are the perceptions of experienced elementary teachers regarding how being up-to-date in skills and knowledge related to teaching will help them attain desired outcomes?

4. Are there any differences in the way experienced elementary teachers at the operational, developmental, transitional, and devocational career levels perceive how various professional development activities contribute to being up-to-date and how they perceive being up-to-date helps them attain desired outcomes?

5. Do those experienced elementary teachers who believe that participation in specific professional development activities results in being more up-to-date participate more in those activities?

6. Do those experienced elementary teachers who believe that being up-to-date in skills and knowledge related to teaching will lead to desired outcomes participate more in professional development activities?

7. Are the rewards that are the most important to teachers for remaining up-to-date in teaching methods extrinsic or intrinsic?

8. Are there any differences in how experienced elementary teachers at the operational, developmental, transitional, or devocational levels perceive the importance of intrinsic and extrinsic outcomes?

9. Regarding the Expectancy Theory of Motivation, is the full model, Expectancy multiplied by the sum of the products of Valence and Instrumentality of each item [$M=E\bullet\Sigma(V\bullet I)$], more predictive of participation in updating activities than its components? The components of the formula are Expectancy (E) and the sum of the products of Valence and Instrumentality of each item [$\Sigma(V\bullet I)$].

In this chapter, a need was presented for an investigation into the factors that influence the professional updating of teachers. In addition, a set of assumptions, delimitations, a glossary of terms, and the research questions for the study were set forth. In chapter two, a review of the relevant literature will be presented.

CHAPTER II

REVIEW OF LITERATURE

There seem to be four factors that influence how teachers update their skills and knowledge related to teaching. These are the choice of updating activity, the nature of the knowledge or skill area in need of updating, the career stage or level of the teacher, and the motivation to update which includes identifying appropriate incentives. Updating activities that have been proven successful through research will be described in the first section of the chapter under the heading of Staff Development. In the second section, Knowledge and Skills of Teaching, the efforts of scholars to define the knowledge base of teaching will be discussed. In section three, Career Development of Teachers, several models and theories of how teachers progress through their careers will be described. The Expectancy Theory of Motivation will be discussed in section four as well as the research related to its use in industrial psychology and in education. In the final section, the scholarly literature concerning Rewards and Incentives will be discussed. A summary will be provided at the end of the chapter highlighting the relationship of each section to one another and to teacher updating.

Staff Development

The surge of interest in education and teachers generated by the reform movement of the 1980s has also highlighted the need for the updating and enhancement of the knowledge and skills of teachers. Consequently, the interest in staff development on the part of researchers, practitioners, and policymakers has also been keen. Staff development has been the subject of countless articles, books, conferences, and research

reports. In addition, policymakers such as state legislators and school district officials consider staff development to be a key ingredient of the school reform process.

Research into staff development has been fruitful in a number of areas. One of the most important findings has been the synthesis from many research efforts of the characteristics of effective staff development practice (Sparks and Loucks-Horsley 1990):

- programs conducted in school settings and linked to school wide efforts;
- teachers participating as helpers to each other and as planners, with administrators, of inservice activities;
- emphasis on self-instruction, with differentiated training opportunities;
- teachers in active roles, choosing goals and activities for themselves;
- emphasis on demonstration, supervised trials, and feedback--that is training that is concrete and ongoing over time; and
- ongoing assistance and support available on request (p. 234).

Another research finding that has influenced staff development practice is that teachers may be at any one of a number of stages or levels of individual or professional development and that activities must be developmentally appropriate (Burden and Wallace 1983; Burke et al. 1987; DeMoulin 1990; Krupp 1989; Levine 1989). The third significant area of research is to view the teacher as researcher in his or her own classroom (Erickson 1986; Holly 1991; Shulman 1987).

Research on specific staff development activities has also made considerable progress. Sparks and Loucks-Horsley (1990) have identified five models of staff development that categorize the many specific staff development activities. The first, *individually guided* staff development, they describe as a process through which teachers plan for and pursue activities they believe will promote their own learning. The second, *observation/assessment*, provides teachers with feedback from observations which will assist them in identifying areas for growth. The third, *development/improvement* process, involves teachers in curriculum development, school reform initiatives, or program design

to solve particular problems. The fourth, the *training* model, is what most people think of as inservice. In this model, teachers acquire skills and knowledge through individual or group activities. The fifth and last model is the *inquiry* model which requires teachers to identify an area of instructional interest, collect data, and make changes in their instruction on the basis of interpretation of that data.

This review of specific staff development activities is organized using the models identified by Sparks and Loucks-Horsley (1990) and described in the preceding paragraph. Although there are literally hundreds of activities that can promote learning and growth in teachers, only those that have broad support in the literature will be discussed.

Individually Guided Staff Development

This model assumes that individual teachers can take the responsibility for their own professional growth and will choose activities that best meet their needs. Some of the traditional individual activities that teachers engage in are reading professional journals, discussing educational issues with colleagues, and testing new instructional strategies. Research on individual and career development in the last two decades has established that individual teachers may be at very different developmental levels within a school building or district (Burden and Wallace 1983; Burke et al. 1987; DeMoulin 1990; Krupp 1989). Therefore, it is essential that teachers have the opportunity to choose activities that will promote their individual professional growth.

One individual activity that is recommended for teachers to reflect on their practice is keeping a journal (Levine and Broude 1989). A significant part of the Principals' Center at Harvard University is keeping a journal during the experience and sharing it with other participants (Levine 1989). Huebner (1987) suggests that teachers should think of their work as a narrative. Diakiw and Beatty (1991) described how they

used a dialogue journal as principal and superintendent to discuss their educational values and expectations for teachers.

An individual activity that reduces isolation for teachers and allows a teacher to develop professional relationships is networking. Maeroff (1988) suggests that the degree of change in schools is strongly related to the extent to which teachers interact with each other. He describes networking activities through a collaborative staff development program. For example, teachers who take the Foxfire course receive support from networks that originate and are coordinated by a staff at the Foxfire Center (Smith and Wigginton 1991). Networks involving teachers from diverse areas of the country and world are now possible with sophisticated communication technology.

Using case studies to solve individual classroom problems is also receiving a great deal of attention. Shulman (cited in Brandt 1992) advocates developing a case literature that is very content and situation specific that teachers can draw on when they have a problem. Dill (1990) writes that case studies are one way to inform beginning teachers about the craft knowledge of experienced teachers. Richert (1991) maintains that case studies cause teachers to reflect, with colleagues, about specific teaching situations. If teaching is to become a true profession, many experts believe that a case literature must be developed (Lieberman 1988).

Observation/Assessment

Teachers, for the most part, receive inadequate feedback (Acheson and Gall 1987). In many districts, teachers are observed less than once a semester and even then feedback is perfunctory (Bacharach, Conley, and Shedd 1986). Even when teachers are observed regularly and feedback is given, teachers perceive it as judgmental. Observation practices have been so bad for so long that it is very difficult for teachers to overcome their aversion to this method of staff development even though there are methods that are designed to promote growth (Sparks and Loucks-Horsley 1990).

One method that is widely disseminated and practiced in some form or another is clinical supervision (Acheson and Gall 1987). The premise of clinical supervision is that it is a cooperative effort between the teacher and supervisor to cooperatively identify areas in which the teacher wishes feedback and then to choose a method to gather data about the identified area. There is a clinical supervision cycle consisting of the pre-observation conference, in which teacher and supervisor agree on the objective and instrument for the observation; the classroom visit, in which data are gathered; and the post-observation conference, in which the data are shared and interpreted (Acheson and Gall 1987). When it is practiced effectively, clinical supervision can assist improvement in teaching.

Peer coaching is another method of providing feedback to teachers. During the process of learning a new teaching technique, the hardest part is the transfer from the learning site to the classroom teaching repertoire (Joyce and Showers 1982). To help alleviate this problem, Joyce and Showers developed the idea of coaching teachers. The coaching can be done by a supervisor or by a peer. Peer coaching involves five major functions: (1) provision of companionship, (2) giving of technical feedback, (3) analysis of application extending executive control, (4) adaptation to the students, and (5) personal facilitation (Joyce and Showers 1982). These researchers advocate organizing faculties into coaching teams that regularly observe each other's teaching and provide helpful information.

Development/Improvement Process

Curriculum development is often viewed as a process in which teachers learn new skills and knowledge while they are designing a new or revised curriculum. Likewise, as the school reform movement matures, school officials and policymakers are recognizing that teachers must be involved in a meaningful way if reform is to succeed. Consequently, participating in school restructuring and improvement efforts may provide

the impetus for teachers to acquire new skills and knowledge (Joyce, Hersh, and McKibbin 1983; Maeroff 1988).

An idea that is receiving renewed interest is integrating the curriculum. Curriculum integration means identifying student outcomes that need to be addressed across several disciplines (such as effective writing skills) or adopting a thematic approach in which one topic is studied from the perspective of several disciplines (Vars 1991). Such curriculum initiatives require teachers to acquire new skills and knowledge. Teachers must know something about the literature of curriculum reform, the content and pedagogy of other disciplines, team building, evaluation approaches, and scheduling alternatives (Jacobs 1991).

Joyce (1991) identifies staff development that focuses on instruction as one avenue to school restructuring and improvement. He suggests that this approach begins with the study of theory or research-based teaching practices and moves through the training process necessary to translate research into practice. Eventually, as the staff gets oriented to visions of improvement they can organize to identify and solve problems collectively. Joyce cautions that there is not a large research base on the practical use of this approach to reorient the workplace.

Training

Most teachers are accustomed to the workshop style training session where an expert presents content designed to help teachers improve their practice. Sparks and Loucks-Horsley (1990) indicate that there are two assumptions that undergird the training model of staff development. The first is that there are behaviors and techniques worthy of being passed on to practitioners. This assumption is supported by the large number of effective teaching behaviors identified by research (Brophy and Good 1986). The second assumption is that teachers can change their behaviors and learn to use new techniques not previously in their repertoire. Joyce and Showers (1982) emphasize the importance of

certain elements of training that improve the chances of transfer of new practice into the existing teaching repertoire. In addition, certain types of knowledge and skills lend themselves to training and it is usually cost-effective because relatively large numbers of teachers can be informed at one time.

Showers, Joyce, and Bennet (1987), in a comprehensive review of research on staff development, isolated a number of findings regarding effective training programs:

> • Almost all teachers can take useful information back to their classrooms when training includes four parts: (1) presentation of theory, (2) demonstration of the new strategy, (3) initial practice in the workshop, and (4) prompt feedback about their efforts.
>
> • Teachers are likely to keep and use new strategies and concepts if they receive coaching while they are trying the new ideas in their classroom.
>
> • Competent teachers with high self-esteem usually benefit more from training than their less competent, less confident colleagues.
>
> • Initial enthusiasm for training has relatively little influence on learning.
>
> • It doesn't seem to matter where or when training is held, and it doesn't seem to matter what the role of the trainer is. What does matter is the training design (p. 79).

Anytime a group of teachers is to receive new information, some form of training is involved. School districts now have the advantage of well-defined, research-based elements of effective training programs.

Inquiry

The notion that teachers can improve their practice by studying themselves, their students, their classrooms, or their schools is an idea that is gathering more momentum all the time (Erickson 1986; Holly 1991). Often called action research, this form of teacher development can take many forms. Shulman (cited in Brandt 1992) implies an individual case study approach in which teachers describe how they solve teaching dilemmas in specific content areas. Lieberman (1986) describes a collaborative research process involving teacher specialists, a graduate student, and a university professor. She notes that the difficulties were that it was time-consuming for teachers with an already overloaded

schedule and that the teachers did not possess the knowledge of research practices. On the other hand, Lieberman (1986) reported that collaborative research efforts have great potential for producing knowledge when teachers define the problems of their work.

Holly (1991) summarizes the methodology of action research as a series of steps:

1. Problem analysis--the initial formulation of the problem
2. Data collection
3. Data analysis and conceptualization
4. Planning of an action program
5. Implementation of this action program
6. Evaluation--monitoring the effects of the action program and judging the quality of the changes (p. 144).

Action research implies that after researchers reach conclusions from the data they use them to form action plans to correct the problem being studied.

The interest in staff development as an important part of improving education has encouraged a great deal of related research. This research has been fruitful in at least two ways. First, there is consensus on the elements of effective staff development programs as well as how to conduct effective training sessions. Second, scholars seem to agree that updating activities must be developmentally appropriate since teachers may be at one of several career stages or levels. In addition, action research, or teachers conducting research in their own setting, is receiving a great deal of attention in the literature as research on teaching moves from a process-product orientation to a more interpretive, or qualitative, design. This change in methods of studying the skills and knowledge related to teaching will be discussed in the next section.

Knowledge and Skills of Teaching

One of the things that has kept teaching from being recognized as a true profession is the lack of a generally recognized core of knowledge (Darling-Hammond 1988; Lieberman 1988; Maeroff 1988). This is often referred to as the knowledge base for teaching. Teacher educators and scholars who study teaching have recognized the need to codify a knowledge base and, in the last decade, defining this knowledge base has generated a great deal of interest. Accordingly, scholars have attempted to categorize this knowledge base in a meaningful way.

Shulman (1987) itemizes the categories into which the knowledge base might be divided:

- content knowledge;
- general pedagogical knowledge, with special reference to those broad principles and strategies of classroom management and organization that appear to transcend subject matter;
- curriculum knowledge, with particular grasp of the materials and programs that serve as "tools of the trade" for teachers;
- pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding;
- knowledge of learners and their characteristics;
- knowledge of educational contexts, ranging from the workings of the group or classroom, the governance and financing of school districts, to the character of communities and cultures; and
- knowledge of educational ends, purposes, and values, and their philosophical and historical grounds (p. 8).

Shulman goes on to enumerate the four major sources for the knowledge base as (1) scholarship in content disciplines, (2) the materials and settings of the institutionalized educational process, (3) formal educational research and scholarship, and (4) the wisdom of practice.

Carter (1990) organizes the knowledge base into three categories. First, the information-processing approaches to teacher knowledge attempt to study the mental processes of teachers as they perform the tasks of teaching. The second approach described by Carter is the study of practical knowledge which refers to the knowledge teachers have of classroom practice and the practical dilemmas they encounter in providing instruction to students. The third category of teacher knowledge suggested by Carter is pedagogical content knowledge. This approach is an attempt to determine what teachers know about their subject matter and how they translate that knowledge into curricular events.

Tom and Valli (1990) describe teacher knowledge according to contrasting epistemological traditions. They identify four traditions: positivism, interpretivism, critically oriented, and craft. According to these scholars, positivists believe that the social sciences should follow the natural sciences, especially in the detachment of the researcher from the object of study and in the attempt to identify generalizations about how the social system operates. An uneasiness about the positivist inclination towards applying laws and generalizations to teaching resulted in an interpretive tradition of research into teaching. Tom and Valli explain that "interpretive scholars seek the meaning that humans attach to the interpersonal and social aspects of their lives, with this meaning being viewed as context dependent" (p. 375). Critically oriented scholars believe that current educational and social arrangement are unjust and that teaching should concentrate on raising the consciousness of students and empowering them to correct these injustices. Tom and Valli acknowledge that craft knowledge is not an epistemological tradition but is the dominant knowledge base for most practitioners. Craft knowledge essentially is the practical knowledge that teachers have accumulated through experience, but has not necessarily been verified through research.

This review of teacher knowledge also will be organized according to epistemological traditions. Necessarily, the sections on the positivist and interpretive tradition will be much longer. Research, especially the process-product research, in the positivist tradition dominated the field during the 1960s and 1970s, and from the seventies on the dominant research paradigm has been the interpretist tradition. Critically oriented approaches to teaching will be very briefly described because they have generated much less interest from researchers and there has been little empirical or descriptive research done in this area. Craft knowledge is derived from "common-sense" or "teacher folklore" and, although criticized as being unscientific, is defended by Shulman (1987), for instance, who calls it "wisdom of practice." This category of teacher knowledge will only be briefly described because of the lack of agreement among scholars about how to define craft knowledge.

Positivism

The most familiar example of research in the positivist tradition is the process-product research on teacher effects. Shulman (cited in Brandt 1992) and Brophy and Good (1986) note that the process-product or teacher-effects research was a reaction to some of the findings of the early school effects research. The Coleman report particularly characterized student achievement as having very little to do with quality of teaching but depended almost solely on student background (Coleman et al. 1966). Shulman (cited in Brandt 1992) observes:

> We had a group of very creative researchers who said, "That's got to be nonsense. We've got to refute that claim. Let's measure variations in the ways teachers teach and meticulously document those variations." So they used variations in types of questioning, wait time, in the frequency with which teachers used praise, and so on. And they demonstrated that with the criterion measures mostly accepted in the policy arena--standardized tests--there were differences that could be attributed to teaching (p. 15).

Researchers, using the process-outcome approach, were trying to identify which teacher behaviors, if any, affected student achievement as measured on standardized tests.

The teacher-effects research was also a reaction to a proliferation of "teacher-proof" curriculum packages produced in the 1960s. The philosophy behind these curriculum approaches, such as mastery learning, was that if the learning task could be broken down into small enough sequences, and the sequence of tasks planned well enough, those things could make up for the deficiencies of both the learner and the teacher (Prawat 1992). The teacher-effects research showed that the practices of teachers have a significant effect on student achievement.

Brophy and Good (1986), two scholars well-known for their contributions to the teacher-effects research, comprehensively reviewed this body of literature. In their review, they provided a history of the process-product design, described all the major teacher-effects studies, and summarized the findings of this body of research. Brophy and Good identified the most consistently replicated findings as those that link achievement to the quantity and pacing of instruction. Achievement is highest in classrooms where a relatively large amount of content is covered, disruptions are minimal, students work at an appropriate level of difficulty, and students spend more time in teacher-led activities than working on their own. These reviewers also noted that academic achievement was affected positively by whole group versus small group instruction and lesson presentations that were structured, appropriately sequenced, clear, enthusiastic, and paced appropriately. According to Brophy and Good, achievement was linked to the difficulty level and clarity of questions. Achievement was also linked to the way the teacher selected the respondent to a question, waited for the response, and the way in which the teacher reacted to the student response. Brophy and Good reported that student success rates and the effectiveness of seatwork are enhanced if teachers explain and go over practice examples before students are expected to work independently. The final effects that were summarized by Brophy and Good were several context-specific findings regarding grade level as well as socioeconomic status and ability of students.

Brophy and Good (1986) noted two common themes that were evident across all the research reviewed, regardless of limitations and qualifications. One was that academic learning time is influenced by the amount of time students are engaged in appropriate academic tasks. The second was that students learn more efficiently when teachers structured information for them and related it to background knowledge already possessed by the students and then monitored the students' performance and provided corrective feedback during recitation, drill, practice, or application activities.

The teacher-effects research was summarized more concisely by Rosenshine and Stevens (1986). From their synthesis of experimental studies in which teachers have been trained to increase the academic achievement of students, they concluded that teachers increased student achievement in well-structured subjects when they did the following:

- Began a lesson with a short review of previous, prerequisite learning.
- Began a lesson with a short statement of goals.
- Presented new material in small steps, with student practice after each step.
- Gave clear and detailed instructions and explanations.
- Provided a high level of active practice for all students.
- Asked a large number of questions, check for student understanding, and obtain responses from all students.
- Guided students during initial practice.
- Provided systematic feedback and corrections.
- Provided explicit instruction and practice for seatwork exerciese and, where necessary, monitored students during seatwork (p. 377).

Rosenshine and Stevens emphasize that these procedures are most suitable for well-structured parts of a content area and are least applicable to lesser structured portions of content. In addition, this small step approach is most useful with younger students, slower students, and students of all ages and abilities during the first stages of instruction.

Brophy (1992) maintained that the teacher-effects research established three major conclusions: (1) teachers make a difference, (2) differences in achievement gains occurred in part because of differences in exposure to academic content and opportunity to learn, and (3) teachers who elicit greater achievement gains do not merely maximize "time on task"; in addition, they spend a great deal of time actively instructing their students. He observed that the process-outcome (also called process-product) research was important because it provided a knowledge base capable of supporting scientific claims about teaching based on empirical research data.

In the same article, Brophy (1992) discussed the limitations of the teacher-effects research. He noted that it focused on important but very basic aspects of teaching. The research was able to identify many elements that more effective teachers routinely include in their teaching but was not able to distinguish between effective and outstanding practices. The second limitation that Brophy mentions, also noted by Shulman (cited in Brandt 1992), is that standardized achievement tests were used as the measurement of student outcomes. Consequently, only very basic and discrete bits of student learning were measured. Conceptual understanding and ability to put the knowledge and skills to use were not assessed.

To summarize, the teacher-effects portion of the process-product research design contributed significantly to the knowledge base on teaching. The research showed that there were certain teaching practices that were highly correlated with increased student achievement, albeit on standardized achievement tests. The process-product research design was limited in that teacher behavior that resulted in in-depth understanding of content could not be tested. Researchers sensed that the limits were being reached with that design and searched for research designs that would yield a more complete picture of teaching.

Interpretivism

Essentially, interpretive research is concerned with concrete interactions that take place between teachers and students in classrooms. According to Erickson (1986), it involves intense and long-term participant observation followed by intentional reflection. This reflection requires of the researcher "deliberate scrutiny of his or her own interpretive point of view, and of its sources in formal theory, culturally learned ways of seeing, and personal value commitments" (p. 119). In addition, he gives three reasons why he describes the field of approaches to participant observational research as interpretive:

> (a) It is more inclusive than many of the others (e.g. case study, ethnography); (b) it avoids the connotation of defining the approaches as essentially nonquantitative (a connotation that is carried by the term qualitative), since quantification of particular sorts can often be employed in the work; and (c) it points to the key feature of family resemblance among the various approaches--central research interest in human meaning in social life and in its elucidation and exposition by the researcher (p. 119).

In a reaction to the positivist tradition, interpretive researchers attempted to study individual teachers in the context of their classroom and school.

Much of the interpretive research on teaching has focused on teachers' thought processes during certain tasks of teaching. In their often cited review of research on teachers' thought processes, Clark and Peterson (1986) identify three major categories of teacher thought processes: (1) teacher planning (preactive and postactive thoughts), (b) teachers' interactive thoughts and decisions, and (c) teachers' theories and beliefs. These scholars caution the reader that the categories are the conceptualization of the researchers reviewed and are not empirically derived. Each category identified by Clark and Peterson will be briefly discussed.

As reported by Clark and Peterson (1986), research has shown that experienced teachers engage in eight types of planning throughout the school year: weekly, daily, long range, short range, yearly, and term planning. Two of the types, unit and lesson planning, refer to organizing content for presentation. The research suggests that teachers spend a substantial amount of time attempting to structure, organize, and manage limited

instructional time. Teachers respond to the pressure for efficient use of instructional time by establishing routines. Four types of routines result from teacher planning: (1) activity routines, (2) instructional routines, (3) management routines, and (4) executive planning routines. Teachers' written plans seldom reflect the whole plan. The few details written on the plan book were "nested" within more comprehensive planning structures called "lesson images."

The second strand of research on teachers' thinking reported by Clark and Peterson (1986) is teachers' interactive thoughts and decisions. The remainder of this paragraph borrows from their research review. Interactive means those thoughts and decisions that occur during the teaching process. Research on the content of teachers' interactive thoughts revealed that the largest percentage of teachers reported that their interactive thoughts during teaching were concerned with the learner. Other research found that the decision-making demands of classroom teaching are relatively intense with one interactive decision required every two minutes. The research on what stimulates an interactive decision is inconclusive with some studies identifying student deviant behavior and others identifying other environmental factors. Attempts to delineate effective interactive decision making have not been successful although there is evidence to suggest that experienced teachers make decisions differently than novice teachers.

The last set of studies reviewed by Clark and Perterson (1986) deal with teacher theories and beliefs. Clark and Peterson drew no conclusions from this set of studies except to observe that teachers do hold implicit theories about their work and that these can be made more explicit through direct and indirect inquiry. One interesting observation was that one reason that educational innovations fail to be implemented was that there may be a difference and even conflict between administrators' and curriculum developers' theories of good teaching and those of teachers.

Another distinct area of interpretive research on teacher knowledge is the study of the knowledge of experienced teachers opposed to that of beginning/novice teachers. Carter (1990), summarizing this line of research, observes that expert teachers, in contrast to novice teachers, use their richly developed schemas (knowledge structures) derived from classroom experience to understand teaching tasks and interpret classroom events. Experienced teachers use their knowledge of classroom routines and activities and typical behaviors that accompany them to make highly accurate predictions about what might occur in a classroom.

Subject-specific or pedagogical content knowledge has also been an area in which a great deal of interpretive research has recently been conducted. McDiarmid, Ball, and Anderson (1989) emphasize the importance of representations in teaching subject matter. Instructional representations are the wide range of models that teachers use to convey something about the subject matter to the student. Central to this notion is that different content areas require different forms of representations. According to these scholars, recent research has emphasized the "critical influence of teachers' subject matter understanding on their pedagogical orientations and decisions" (p. 198). In addition, in order to teach subject matter adequately, teachers must have knowledge of how students learn. McDiarmid, Ball, and Anderson cite the recent research on cognitive development showing how students' prior knowledge and beliefs influence how they make sense of new ideas as essential knowledge for teachers.

Critical Theory

Proponents of critical theory believe that the key to economic and social justice is democratic struggle. Spring (1988) summarizes the position of the critical theorists when he writes:

> For critical theorists, history is the continuous expansion of political, economic, and social rights as a result of struggle against oppression. In other words, their view of history is optimistic and hopeful, but this optimism and hope depends on people

> continuing to fight against oppression and economic exploitation. Given this optimistic view of history, critical theorists emphasize an education for democratic empowerment, which simply means giving students the knowledge and skills they need to struggle for a continued expansion of political, economic, and social rights. Of utmost importance is making students aware that they have the power to affect the course of history and that history is the struggle for human rights (p. 23).

In this view of history, women and minorities are more involved in the struggle against oppression than white males. Consequently, critical theory encourages paying attention to voices other than those typically heard in history.

Giroux (1988) labeled teaching that employs critical theory *critical pedagogy*. He believed that the struggle against oppression should be extended to the schools. He wrote:

> At stake here is the willingness of educators at all levels of schooling to struggle collectively as transformative intellectuals, that is, as educators who have a social vision and commitment to make public schools democratic public spheres, where all children, regardless of race, class, gender, and age can learn what it means to be able to participate fully in a society that affirms and sustains the principles of equality, freedom, and social justice (p. 215).

Educators who employ critical theory in their teaching assist students to gain the skills and knowledge to critically assess society. Students are then empowered to engage in the struggle to assure that all persons receive social justice.

Craft Knowledge

Corrigan and Haberman (1990) describe craft knowledge as the knowledge base that comes from practitioners themselves: their teaching behaviors, perceived problerms, and analyses of their daily activities. Zeichner, Tabachnick, and Densmore (1987) characterize craft knowledge as "a number of different approaches to studying the psychological context of teaching, from the more conventional studies of teachers' attitudes and beliefs to the more recent attempts to describe the 'implicit theories' of teachers, from the teachers' point of view and in the teachers' own language" (p. 21). Tom and Valli (1990) observe that craft knowledge evolved because some characterize teaching as a craft because it is "an enterprise of traditionalism and apprentice training" (p. 377).

Not only is there disagreement about what is included in the field, there is a lack of consensus about the nature of craft knowledge. Zeichner, Tabachnik, and Densmore (1987) cite differences in findings on the consistency of teachers' attitudes and beliefs (consistent) and teachers' implicit theories (inconsistent). There are also discrepancies in the uniformity of teachers' knowledge in the occupational group (uniform) and the "teachers' cultures" within that occupational group (heterogeneous).

Central to the literature on teachers' craft knowledge is the way that teachers cope or not cope with the demands and restraints imposed by the conditions of the workplace. Researchers such as Rosenholtz (1989) and McLaughlin et al. (1986) have described a number of workplace conditions, identified by teachers, that restrict the ability of teachers to function effectively in the workplace. Some examples of these conditions are class composition and student discipline, availability of supplies and materials, administrative actions including teacher evaluation, isolation of teachers, opportunity for professional growth, and lack of recognition.

Empowerment and Knowledge

One notion of teacher empowerment is that teachers are given more opportunity to participate in the decision making of the school district. The example that is most commonly given is site-based management in which teachers help to administer the school building. Lichtenstein, McLaughlin, and Knudsen (1992) observe that more often than not attempts to give teachers more authority through site-based management are not successful. Teachers are frustrated by the amount of time taken up in committee meetings and what they perceive as a lack of knowledge to participate effectively.

Lichtenstein, McLaughlin, and Knudsen (1992) suggest that knowledge-based reforms were more successful than formal, institution-based reforms. For instance, where site-based management was created through district policy it had limited success. Conversely, where teachers had opportunities to gain professional knowledge in

collaborative settings--knowledge that empowered them to participate effectively in school district inititatives--site-based management was more successfully implemented (Lichtenstein, McLaughlin, and Knudsen 1992). Lichtenstein et al. list three types of knowledge that are empowering to teachers: (1) knowledge of professional community, (2) knowledge of educational policy, and (3) knowledge of subject matter.

Knowledge of professional community is empowering when teachers have the opportunity to make contact with teachers from other districts in the region and nation. Teachers learn about the human resources and ideas available to them by meeting and talking to other teachers. Lichtenstein, McLaughlin, and Knudsen (1992) observed that knowledge of professional community empowers teachers in two ways. It helps them to recognize their own expertise and it expands teachers' conceptions of what is possible within their own practice and in the profession as a whole.

Knowledge of educational policy also helps teachers feel more empowered. Teachers often do not have access to information about state or nationwide policy trends. Their concerns traditionally have been focused more narrowly on the classroom. Lichtenstein, McLaughlin, and Knudsen (1992) maintain that knowledge of educational policy empowers teachers because it "provides access to the broader policy system of which they are a part" (p. 49). Access to this policy system enables teachers to become more proactive in their classrooms and in broader policy arenas such as the district or state.

Lichtenstein, McLaughlin, and Knudsen (1992) suggest that a connection exists between knowledge of subject matter and teacher empowerment. They theorize that comprehensive knowledge of the discipline empowers teachers in three ways: (1) It provides the foundation of their authority and thus their professional discretion; (2) it can provide a basis for involvement in a professional community; and (3) disciplinary knowledge has direct relevance in policy decisions. Teachers who are experts in their subject area possess a "map" that guides their decision making throughout the day.

Comprehensive subject matter knowledge encourages collegiality with other teachers with the same subject matter interests. Finally, teachers who are concerned with the vitality of their content area often become active in policy decisions affecting their discipline.

Recently, attempts have been made to define the knowledge base of the teaching profession. An important contribution to the knowledge base is the research on teaching behaviors that has a positive effect on student achievement as measured on standardized tests. Currently, research efforts are focused on more interpretive studies in the area of teacher planning, expert teacher versus novice teacher schema, and subject matter knowledge and pedagogical knowledge. The research that seems to have the most potential for influencing practice is in the area of subject-specific or pedagogical content knowledge that emphasizes choosing the most effective instructional representation for teaching specific subject matter.

Interpretive research attempts to take into account how the context in which teachers work affects the decisions they make during their teaching. Research on the career development of teachers indicates that the career development of teachers is also tied to the way in which they approach their jobs. This area of research on the teaching profession will be investigated in the next section.

Career Development of Teachers

According to Burden and Wallace (1983), teacher career development deals with changes teachers experience throughout their careers in (1) job skills, knowledge, and behaviors; (2) attitudes and outlooks; and (3) job events. Theories about teacher career development can be divided into three types. The first set of theories is models that are patterned after adult stages of development (Glickman 1985; Krupp 1989). These models view teachers as passing through different developmental career stages as they progress through their career. The second set of career development models are those that were developed through qualitative research (Burden 1980; Spector 1989). In these models,

experienced teachers, through interviews, identify the stages themselves. The third set of career development models postulates career development as not necessarily related to age or years of experience but to the engagement in the profession (Burke et al. 1987; DeMoulin and Guyton 1989; Steffy 1989). Representative models in each of the three categories will be discussed.

The first set of career development models draws on the body of research on stages of adult development. Some of the adult development theories often cited in these teacher career development models are life transitions (Erikson 1950; Gould 1978; Levinson 1977; Neugarten 1977; Sheehy 1976), stages of adult cognitive development (Havighurst 1980), moral development (Gilligan 1982; Kohlberg 1984), and ego development (Loevinger 1976). Scholars such as Glickman (1985) and Krupp (1989) have synthesized the adult development literature and used it as a starting point for their own theorizing about the stages of career development of teachers.

Glickman (1985), after an extensive review of the work of many adult development theorists, arrived at a conception of teacher development in the areas of thought and motivation. Glickman developed a model with nine categories which result from a grid with egocentric motivation, group motivation, and altruistic motivation from top to bottom on the left side and concrete thought, restricted thought, and abstract thought from left to right across the top. The nine resulting cells each describe a teacher in a different stage of development. For instance, cell Ib which combines egocentric motivation with restricted thought Glickman describes as "teachers [who] would have egocentric motivation and restricted thought. They might be seen as acting in a routine manner, doing the things necessary to keep their job yet aware of some changes needed to improve their teaching" (p. 63).

Krupp (1989) is another researcher who has used a synthesis of the adult development literature to postulate career stages of teachers. Krupp (1989) divides adults

in the career of teaching according to age, citing the twenties, the thirties, the forties, and the fifties and beyond. Teachers in their twenties are unsure of themselves as they orient themselves around a career and family, they start to develop a dream of what they would like to attain, and they seek mentors to help them fulfill their dream. In their thirties, teachers, like other adults, start the process of individuation or the process by which people determine how they fit into the world. People in their thirties question many aspects of their lives including career, marriage, parenting, and geographic location. Men's concerns focus on career while women's tend to focus on many aspects of their existence. Teachers in their forties begin to view life as "time left to live" rather than an "endless expanse of possibilities" and neglected parts of the self seek fulfillment. Men tend to become more nurturing; women who have been nurturing during the first half of life become more assertive. During this midlife period, many feel some disillusionment with their career gains; some feel trapped in a job that is no longer satisfying because of money tied up in retirement, geographic inflexibility, or unwillingness to take a risk. Krupp (1989) suggests that teachers in their fifties become "keepers of the meaning" (p. 53). In other words, they know their own values and they want them maintained by society and the organization. Persons in their fifties take a more relaxed view of life and its problems. Retirement also concerns those in their fifties. They worry about enough money to continue their lifestyles. They want to know how to retire. Krupp's work can be summarized by this statement: Teachers go through the same developmental stages as other adults.

The second set of teacher career development models has been derived from qualitative research, usually involving interviews with experienced or retired teachers (Burden and Wallace 1983; Spector 1989). Teachers in these models generally follow a linear or chronological progression through a set of stages as they age and gain experience. Two representative qualitative studies will be examined for this review.

Burden (1980) reported evidence from an interview study that supported three stages of development in the early part of a teaching career. Stage I was a survival stage that took place during the first year of teaching. Teachers in that stage were characterized by limited knowledge of teaching activities and teaching environment, subject-centeredness, little professional insight, lack of confidence and unwillingness to try new methods, and conformance to their preconceived image of "teacher." Stage II was an adjustment stage and occurred for these teachers in the second through the fourth year. Teachers in this stage thought they were learning a great deal, were starting to see the complexities of children, sought new techniques to help them, became more open with children, and gained confidence. Stage III, the mature stage, occurred during the fifth and subsequent years of teaching. Teachers at this stage felt they had a good command of teaching activities and the environment, were more child centered, more confident and mature, and more willing to try new teaching methods.

Spector (1989) postulated a five-step linear career development model after observing and interviewing 309 science teachers over a seven-year period. Teachers in stage I, the induction stage, focused on their own survival in the school building, felt unsure and insecure, and tended to be nonassertive. They preferred to be told one way to teach. They were textbook bound and avoided lab experiments. Stage I teachers usually emulated the teaching methods of their college science professors. In stage II, the adjustment stage, teachers focused on presenting subject matter. They were actively developing, trying to apply what they learned at college, and became adept at planning and organizing methods. They still depended on the textbook, but they tried other resources as well. Stage II teachers began responding to students' individual needs but were intolerant of methods and ideas that differed from theirs. Teachers in stage III, maturation, focused on variations in students' needs and on the impact of their behavior on students. They enjoyed making decisions about teaching strategies and curricula. Stage III teachers

diagnosed and remediated problems and generated innovative ways to stimulate students. At stage IV, midcareer crisis, teachers focused on themselves and their survival. They experienced discomfort and no longer felt good about teaching. The isolation of the classroom stimulated a strong desire for adult interaction, variety in their work, and career advancement. They had a hard time making decisions or developing conviction. Stage IV teachers often experienced such frustration that they considered changing positions within education or leaving it altogether. In stage V, leadership, teachers were very knowledgeable, secure, and flexible. They cherished their autonomy and felt personal pride about making decisions based on their own well-defined philosophy of science education. Stage V teachers thrived on the interaction and feedback derived from sharing their expertise with other educators.

The third set of teacher career development models hypothesized that a teacher's age does not necessarily determine what stage of career development he or she may be in. DeMoulin (1991) differentiated between the term "stage" which implied a linear progression and level which implied that teachers at the same age or experience may be at different levels of career development. Age is certainly a factor, but other considerations such as performance versus stress (DeMoulin 1991), personal and organizational environment (Burke et al. 1987), and attitude (Steffy 1989) determined the level a teacher was in at any one time in his or her career. These models presented an interesting departure from most previous teacher career development models because they suggested some flexibility in moving in and out of developmental levels over the life of the career.

Burke et al. (1987) developed an eight-stage teaching career model that was derived from a study of adult development literature, qualitative studies of teacher career development, and other theories of career stages. These researchers maintained that movement through stages does not necessarily have to be in chronological order, although the stages are always listed in the same order. The preservice stage is described as the

period of preparation for a specific professional role. Typically, this would be a period of preparation in a university although it could mean training for a new role through an advanced degree or staff development. The induction stage was the first few years of employment when the teacher was socialized into the system. Teachers also experienced induction when shifting to another grade level, another building, or when changing districts entirely. Competency building was a stage of the career cycle in which the teacher was striving to improve teaching skills and abilities. Teachers at this stage were receptive to new ideas, they saw their job as challenging, and they were eager to improve their repertoire of skills. In the enthusiastic and growing stage, teachers reached a high level of competence in their job but continued to progress as professionals. They had enthusiasm and high levels of job satisfaction. The stage of career frustration was characterized by frustration and disillusionment with teaching. Job satisfaction was waning, and teachers began to question why they were doing this work. This sense of frustration occurred most often during midcareer, although Burke et al. (1987) maintained that increasing numbers of teachers faced this circumstance earlier in their careers. The sixth stage is stable but stagnant. These teachers have resigned themselves to doing what is expected of them but little more. They may be doing an acceptable job but are not committed to the pursuit of excellence and growth in the profession. Career wind-down was a stage when a teacher was preparing to leave the profession. It may be a pleasant period of reflection for some, but for others it may be a bitter period in which the teacher resents the forced job termination or cannot wait to get out of an unrewarding job. Career exit represented the period of time after the teacher left the job. In many cases this could be retirement, or in other cases it could be a period of unemployment or job hunting, temporary career exit for child raising or sabbatical, alternative career exploration, or moving to a nonteaching position such as administration. While there is a certain logic to a linear view of this career

cycle, a more accurate picture is probably of teachers moving in and out of the stages in response to personal and organizational influences (Burke et al. 1987).

Steffy (1989) proposed a five-stage model "based on the assumption that people are basically good, that they self-actualize, and that they become self-confident, contributing adults through the work environment" (p. 19). Steffy noted that movement through the stages proposed in her model depends on attitude. She suggested that this is in contrast to most models of teacher career stages which are based on age and have a deterministic quality to them.

Steffy's (1989) model had a beginning stage called the anticipatory career stage. Teachers in this stage were characterized as nontenured, idealistic, posessing boundless energy, open to new ideas, creative, and embodying a growth orientation. Both beginning teachers and experienced teachers new to the district were in the anticipatory stage. Beginning teachers typically required three years to work through this stage but a nontenured, experienced teacher often did it in less time. The expert/master stage contained expert teachers who "processed several sources of information simultaneously, seemed to know instinctively when the classroom was out of sync, and immediately made it clear to students that they, not the students, were in charge of the classroom" (p. 22). In addition, expert/master teachers had high expectations for student performance of district-mandated curriculum and effective time management routines. At the withdrawal career stage, there was a need for administrative intervention. Withdrawal could be of three types--initial, persistent, or deep--requiring different levels of intervention. Teachers in the renewal stage were getting better not worse. They were involved in some growth activity designed to bring them to the expert/master career stage. For the growth and development activities to be effective, they must be seen as appropriate and valuable to the teacher. In the exit career stage, the teacher was about to leave the system. The teacher may be leaving because of retirement, career change, or some kind of leave. Steffy observed that the anticipatory and

exit stages are defined by a teacher's entering and leaving the profession; the others--expert/master, withdrawal, and renewal--depend on the internal motivation and competence of the teacher which may be stimulated by working conditions.

DeMoulin and Guyton (1989) hypothesized a model that included four levels of career development. This model was developed by asking teachers and principals to assign 160 separate teaching characteristics to a corresponding level of experience that they felt correctly described a teacher within the specified divisions. Through a treatment called Principal Component Factor Analysis, divisions of the teaching characteristics corresponding to four developmental levels became evident. This model was later refined by DeMoulin (1990).

In DeMoulin's (1990) model, teachers at the operational level entered the teaching field with a feeling of stress, possibly due to unknown expectations of the position. Their unfamiliarity led to trial-and-error situations to find a comfortable method of instruction. Teachers at this level had low assessments of their ability; but as they gained experience, self-efficacy began to increase. In the developmental level, teachers were self-motivated, had personal direction, and were highly structured. They used expanded methods of instruction that seemed effective in the classroom setting. Transitional teachers exhibited characteristics of declining classroom effectiveness. They were facing an emotional adjustment concerning their futures as teachers. They seemed to possess less motivation for teaching. A transitional teacher needed proper renewal practices. In the decelerating stage, teachers had little motivation for work. They spent little time before or after school on school-related work. They were nonparticipants in staff development and exhibited classic burnout symptoms. One major implication of this study was that the age factor did not determine a teacher's level of career development (DeMoulin and Guyton 1989).

The research described in the preceding paragraphs suggests that teachers may be at any number of developmental stages. Even if these studies do not agree on what may be the particular developmental stages, they do agree that professional developmental activities be developmentally appropriate. What may be perfect for the teacher at one stage in his or her career may not have any utility for another teacher at a different developmental stage.

Understanding that updating activities must be individualized to appeal to persons at different career stages is certainly important to encourage participation by teachers. However, an understanding of how individuals are motivated is essential if school districts are to convince teaching staffs to update their skills and knowledge. The Expectancy Theory of Motivation, discussed in the next section, is an individualized theory of motivation which is in keeping with the notion that what is appropriate for one teacher may not be for another.

Expectancy Theory of Motivation

The Expectancy Theory of Motivation has the potential of explaining the wide range of reasons teachers may or may not engage in updating activities. Expectancy theory attempts to explain the process individuals go through in making a decision to expend effort or not. According to this theory there are three elements that have to be in place for an individual to expend effort. The first element, *expectancy*, refers to the belief that effort expended will result in some performance level or knowledge state. The second element, *instrumentality*, refers to the belief that attaining a certain performance level or knowledge state will affect rewards or outcomes. The third element, outcome *valence*, refers to the attractiveness of some reward or outcome. The usefulness of expectancy theory lies in the fact that it recognizes that individuals may vary widely in their reasons for choosing or not choosing to expend effort.

The Expectancy Theory of Motivation stems from the work of two 1930s psychological theorists, Lewin (1938) and Tolman (1932). Both believed that individuals have expectancies regarding the outcomes likely to occur as a result of effort expended. In other words, people have ideas about the consequences of their acts and make conscious choices about their behavior based on the likely outcome and its value to that person.

Vroom (1964) refined and added to the work of Lewin and Tolman to present a unified theory. Essentially, Vroom's version of the theory suggests that two variables combine to influence the force that an individual brings to a task. The first variable is expectancy which is the degree to which an individual believes that effort results in attaining the outcomes. The second variable is the valence or perceived value of the outcomes stemming from the action. In its simplest terms, Vroom's version of the theory is Force = (the expectancy that effort results in attaining outcomes) X (the valence of the outcomes) (Campbell and Pritchard 1976). Within the two variables, there are actually three elements contained in Vroom's version of expectancy theory: valence, instrumentality, and expectancy.

Valence refers to the perceived positive or negative value placed by a person on the possible outcomes resulting from an action. There are actually two levels of outcomes that are possible. The first is simply the level of performance achieved. Different levels of performance have different valences. The second are outcomes that might result from performance such as salary, promotion, peer acceptance, or recognition.

Instrumentality refers to the perceived relationship between the two types of outcomes: level of performance achieved and possible outcomes resulting from performance. For instance, if budgets are tight, a high level of performance by a worker still might not result in a pay increase. Consequently, in this example, the instrumentality of high performance in gaining pay increases is low. However, the worker may be

recognized and complimented by his or her supervisor so that the instrumentality of high performance for recognition is high.

It is theorized that valence of outcomes and instrumentality combine to determine the valence of a given performance level. The valence or value of a second-level outcome is multiplied by the instrumentality of a given performance level for that outcome. Theoretically, these products are summed for the various outcomes to determine the valence (value) of the performance level.

Expectancy refers to the relationship between a given degree of effort expenditure and a level of performance. Campbell and Pritchard (1976) give the example of a low expectancy situation as an assembly line where the number of units produced is controlled by the speed of the assembly line. Increased effort on the part of the worker would not result in a corresponding increase in the level of production.

Expectancy theory generated an enormous amount of interest and became the dominant theory in work motivation (Campbell and Pritchard 1976). Consequently, there have been several revisions of the theory (Graen 1969; Lawler 1968, 1973; Porter and Lawler 1968), many empirical studies, and several research reviews (Campbell and Pritchard 1976; Heneman and Schwab 1972; House, Shapiro, and Wahba 1974; Mitchell 1974). In the paragraphs that follow, the revisions of the theory as well as the research reviews will be discussed.

Graen's (1969) contribution is usually viewed as an extension rather than a revision of expectancy theory (Campbell and Pritchard 1976). Graen believed that expectancy theory did not take into consideration all the variables that contribute to job performance. He was especially concerned that multiple employment roles be considered as well as all the possible outcomes of meeting or not meeting the standards of the task be identified. Graen described several possible employment roles. However, he

acknowledged that the effective versus the standard performer are the central employment roles in his model.

In Graen's (1969) model, all possible outcomes are separated into three major classes. The first class is intrinsic or internally generated. Extrinsic or externally mediated outcomes make up the last two classes which are pressures to comply with role expectations emanating from a person in power and role outcomes that are specified by the organization or culture as being attached to that role. The effort that an individual exerts to achieve the role or task is a function of the attraction to the role and the expectancy that a particular amount of effort will result in the role expectation.

Campbell and Pritchard (1976) observed that the complexity of the Vroom and Graen models of expectancy theory result from their use of discrete effort levels. In both models, the anticipated value of each of the effort levels is important. Graen specifies two effort levels; Vroom is not specific. In the opinion of Campbell and Pritchard, "The use of discrete effort levels made operationalizing either of the two models difficult" (p. 78).

Porter and Lawler (1968) attempted to simplify the model so that it would be more practical to use. First of all, they avoided the problem of discrete effort levels by simply referring to effort as the energy expended to perform some task. They defined rewards as "desirable outcomes or returns to a person that are provided by himself or by others" (p. 28). There are two parts to this definition. First, the outcomes or rewards must be positively valued by the person. Second, the rewards can be either intrinsic, internal to the person's own behavior, or extrinsic, provided by another person or the organization. Essentially, the only source of information on whether an individual feels rewarded is the perceptions of the individual. Individuals are the only ones who can tell us if they have rewarded themselves with, for instance, a feeling of satisfaction. Porter and Lawler warned of the dangers of using only objective measures for extrinsic rewards.

They cautioned that even though an outcome, such as a promotion, is thought of as a reward, it does not mean that the individual sees it that way.

The second variable identified by Porter and Lawler (1968) is effort-reward probability. There are two subsidiary expectations associated with this variable: (1) the probability that performance depends upon effort and (2) the probability that reward depends upon performance. In the vocabulary of the original Valence, Instrumentality, Expectancy theory, the first expectancy would conform to the expectancy element and the second is similar to the instrumentality element. Porter and Lawler hypothesized that the two subsidiary expectations are interactive and that if one or the other is low, then the effort-reward probability is also low.

Effort, according to Porter and Lawler (1968), refers to the "energy expended to perform some task, but does not necessarily correlate with how successfully the task is carried out" (p. 22). Porter and Lawler's hypothesis is that the perceived value of the reward and the effort-reward probability, which is a function of the two subsidiary probabilities, combine in a multiplicative fashion to predict effort.

Porter and Lawler (1968) incorporated two feedback loops into their model of expectancy theory. The first is that the way in which an individual is rewarded over time may affect the way he or she views the reward in the future. To elaborate, rewards have to be desired in the mind of the receiver, not only in the perception of the giver. What is regarded to be a "good" reward in the eyes of the organization may not be valued by the employee. Another point in this feedback notion is that the individual must see the reward as connected with the performance. To summarize, Porter and Lawler's model utilized past learning experiences regarding effort-reward probability as a factor in determining expectancies about the future.

The second feedback loop has to do with the effect of felt satisfaction with a reward on subsequent anticipated value or satisfaction. Porter and Lawler (1968) made the

point that after some outcomes that satisfy lower order needs such as hunger and thirst are received, the desire for them is diminished and the outcome no longer is motivating. They believe that it is not clear that if a higher order need is met by an outcome (such as recognition that lives up to his or her expected level of recognition) that its future value or attractiveness is diminished. They hypothesized that the "effects of satisfaction on reward value may be different for--even opposite for--different types of needs and their associated rewards" (p. 40).

Lawler (1968, 1973) further modified expectancy theory by adding to the factors that determine an individual's expectancy that effort will lead to performance. Lawler theorized that expectancy will be determined by (1) the task information specific to the particular stimulus situation under consideration, (2) the individual's fund of information concerning how he or she has done on similar tasks in the past, and (3) the individual's self-esteem or a relatively permanent characteristic of the individual's personality that reflects the generalized perception of competence across almost all task situations. Lawler also included another feedback loop that is concerned with the degree to which the effect of task success or failure contributes to self-esteem.

As the number of studies utilizing and testing expectancy theory increased, scholars began to review and evaluate the research. Reviews were written (Campbell and Pritchard 1976; Heneman and Schwab 1972; House, Shapiro, and Wahba 1974; Mitchell 1974). The reviewers evaluated nine to thirty-two studies. Weaknesses were identified in the research design, research methodology, and the data analysis of studies using the expectancy theory. Some of the most common concerns identified by these research reviews included the following:

1. Findings were not consistent and at times were contradictory.

2. Between-subjects analysis was used in most of the subjects even though the theory is an individual one. There is a need for within-subject analysis.

3. It is not clear which combination of variables provides the best predictors of effort and/or performance and satisfaction. What is clear is that the individual components are less predictive than the aggregate model.

4. The intrinsic and extrinsic valences as predictors show mixed results, although intrinsic valences have been generally valued more highly.

5. The question of how many second-level outcomes and how they are to be generated needs to be resolved. If the researcher develops a list of rewards, it is possible the rewards are not desired by the subjects. Obviously, if the subjects are each allowed to identify their own desired outcomes, there is no way to properly analyze the data.

6. Most of the studies used only positive outcomes. The theory states that both positive and negative outcomes are possible.

Schwab, Olian-Gottlieb, and Heneman (1979) analyzed thirty-two between-subjects expectancy theory studies to examine the explained variance in the studies. Using multiple regression these researchers found that 42 percent of the variance explained (dependendent variable) was a function of various characteristics of the effort and performance and of the force-to-perform measures (the independent variables). They discovered that variance explained was greater when self-reporting was done for the dependent variable (i.e., effort), when there were ten to fifteen outcomes, valence was scaled positively, and when expectancy and instrumentality were both measured.

Although expectancy theory was originally used to try to predict effort in the industrial workplace, it soon was applied elsewhere. For instance, the theory found its way into educational research. It has been used to predict undergraduate academic performance (Henson 1976), job satisfaction of teachers (Miskel, DeFrain, and Wilcox 1980; Randklev 1984), willingness to participate in curriculum work (Wright 1985), and the willingness to attend adult education courses (Howard 1989). However, empirical

research testing the expectancy model in educational settings is minimal compared to that done in industrial settings (Wright 1985).

Two of the most recent studies utilizing expectancy theory in the study of elementary and secondary school teachers are those of Randklev (1984) and Wright (1985). Unfortunately, neither of these researchers tested the predictability of the entire expectancy theory. They focused on the valence and instrumentality components of the model. In the following paragraphs, these studies will be discussed individually.

Randklev (1984) studied the job satisfaction of elementary teachers and, as a part of that study, surveyed teachers regarding the desirability and availability of incentives related to teaching performance. She found that rewards related to recognition were the most desirable and available. Rewards related to facilities, equipment, and supplies; pay; decision making; and working conditions were desirable but not available. Essentially, Randklev utilized the valence (desirability) and instrumentality (availability) elements of the expectancy theory, but not the expectancy (perception that effort will lead to level of performance) element. Randklev made no attempt to test how predictive the complete expectancy theoretical model was of job performance or job satisfaction.

The same observation could be made of Wright's (1985) study. Wright examined the perception of teachers regarding the instrumentality of desired rewards for curriculum tasks. Although Wright's study was more focused on the expectancy theory than Randklev's, she did not test the predictability of the entire model either. Like Randklev, Wright did not test the expectancy portion of the theory, in the case of this study, that engaging in the curriculum tasks would lead to improved curriculum development. Neither did she test the ability of the expectancy model to predict the extent to which teachers engaged in curriculum work.

One area in which the theory has not been tested is the updating of professional skills and knowledge by teachers. However, Farr et al. (1984) employed expectancy

theory to study the updating behavior of engineers. They chose expectancy theory as the theoretical base for their study:

> Expectancy theory does not attempt to specify what variables affect motivation or what outcomes people seek as a result of their behavior. This is an advantage in many ways over theories which prescribe that *all* individuals should be motivated to achieve a *particular* outcome. The principal advantage is that the theory explicitly recognizes the existence of individual differences, while not eliminating the possibility that certain variables and outcomes may be important for many individuals.
>
> Expectancy theory also suggests that the researcher interested in understanding why individuals act or do not act in a particular way must consider alternatives to that behavior. Although this seems to be a simple point, often it is ignored. In the specific area of technical updating, previous research already noted has found that many engineers do not engage in any updating activities. A possible explanation from expectancy theory for this lack of updating is that these engineers perceive no gain in desired outcomes from being technically up-to-date when compared to not being up-to-date (pp.7, 8).

Farr et al. found significant correlations between beliefs about the likelihood of obtaining certain outcomes and the number of technical courses taken during the last year. There were also several statistically significant negative correlations between the number of technical courses taken and beliefs about the unfavorable consequences of remaining at the level of one's current knowledge.

Expectancy theory states that an important element in motivation is the employee's perception of the desirability of the outcomes associated with the performance of the task. If the outcomes are not desirable or are not perceived to be available, motivation will be lessened or nonexistent. Therefore, it is necessary for educational organizations to understand what the research says about incentives and rewards and teaching.

Rewards and Incentives

One of the problems in reviewing the literature on rewards is distinguishing between rewards and incentives. Many, indeed most, authors use the terms interchangeably. Mitchell, Ortiz, and Mitchell (1987) attempted to distinguish between the

two in their study of teaching rewards and incentives. They concluded that incentives are a special class of reward and distinguish between the two in the following way:

> Thus, while the term *reward* focuses on the pleasures or satisfactions gained from an activity or experience, the word *incentive* refers to the fact that contemplating access to those satisfactions leads people to modify their behavior in order to secure rewards and avoid punishments. In essence, all rewards have both a *reward* value and an *incentive* value. The reward value refers to the type and amount of pleasure or satisfaction that is produced. The incentive value refers to the nature and extent to which the reward "sets the tune" for one's behavior. Incentives, therefore, are always contemplated. Other rewards may come as surprises or happy accidents, but it is only meaningful to speak of incentives when the recipients have contemplated their arrival (p. 39).

According to this reasoning, any time rewards are to be used to motivate individuals, they are regarded as incentives because it is the contemplation of receiving desired rewards that energizes behavior.

It is possible for rewards to exist without ever becoming incentives for action (Mitchell, Ortiz, and Mitchell 1987). If persons cannot imagine themselves ever being able to perform the task upon which the reward depends, there is no incentive to perform the task. This view is supported by the expectancy theorists who suggest that an individual's sense that an activity is within his or her capability to perform influences whether the person will exert effort to perform the task.

Work-related rewards have traditionally been divided into two categories: intrinsic and extrinsic. Mitchell, Ortiz, and Mitchell (1987) distinguish intrinsic from extrinsic rewards in two ways. First, intrinsic rewards are "personalized psychic experiences" (p. 187). They come from within the individual and cannot be physically manipulated by others. Second, extrinsic rewards are immediately connected to the activity with which they are associated. In other words, their dispersal is immediate and direct, not dependent upon the actions of others or delayed until some subsequent experience is encountered. Mitchell, Ortiz, and Mitchell state further that extrinsic rewards have the opposite characteristics. They are objective or material in character and can therefore be manipulated by others. Their dispersal is not totally under the control of the person

receiving them, and dispersion is often not adequately linked to the activities with which they are supposedly associated.

Some researchers have added other categories of rewards, such as Lortie's (1975) notion of ancillary rewards. Mitchell, Ortiz, and Mitchell (1987), in their review of the literature on rewards, conclude that "there is virtually unanimous agreement among serious scholars that these two types of rewards are fundamentally different in character. None of the numerous other categories of rewards proposed in the literature have either the conceptual clarity or empirical reliability of these two" (p. 25). Therefore, the discussion in this review will be limited to only extrinsic and intrinsic rewards.

There has been a great deal of discussion in the literature about which type of reward is more motivating. In their landmark study, Herzberg, Mausner, and Snyderman (1959) describe extrinsic factors as hygiene items without which there is dissatisfaction. These include supervision, interpersonal relations, physical working conditions, salary, company policies, and administrative practices. However, such intrinsic items as achievement and personal growth were described as motivators because they are what energizes effort.

What rewards do teachers get from teaching? Feiman-Nemser and Floden (1986) suggest that extrinsic rewards that flow from teaching consist of salary, status, work schedule, and power. These authors maintain that teachers have yet to achieve extrinsic rewards commensurate with professional status. Since extrinsic rewards are relatively scarce in teaching, intrinsic rewards take on more importance. Mitchell, Ortiz, and Mitchell (1987) concur:

> All of the available evidence supports two basic conclusions regarding the value or potency of various rewards for educators. First, educators generally find intrinsic rewards more meaningful and attractive than extrinsic ones. Given that teachers are paid about 30 percent less than comparably trained workers in other fields, this finding is not surprising. It is, however, vitally important that managers and policy makers keep it in mind when trying to improve school performance. The second broadly supported conclusion is that educators rely on sharply divergent subjective meaning systems for interpreting their work responsibilities and experiences. As a

> result, different teachers seek and respond to quite different intrinsic rewards within their work (p. 188).

It can be inferred from the preceding statement that although evidence is fairly conclusive that intrinsic rewards are more meaningful for teachers, delineating intrinsic rewards that are potent for all teachers is a remote possibility.

Nevertheless, perhaps it is possible to identify intrinsic rewards that are desirable to most teachers at some time. For instance, evidence seems to be persuasive that students are an important source of intrinsic rewards for teachers (Lortie 1975; Mitchell, Ortiz, and Mitchell 1987). The achievement of students is a source of great satisfaction to teachers and in lieu of achievement the attachment that students form for a teacher is also important (Feiman-Nemser and Floden 1986). Wright (1985) found in her study of incentives related to curriculum development that intrinsic rewards, such as increased effectiveness as a teacher and opportunity to improve existing curricula, were the most powerful for the teachers she surveyed.

Starting in 1983, with a series of national reports criticizing the schools and teachers, a great deal of interest was generated in incentive plans for teachers. The law firm of Cresap, McCormick, and Paget, Inc. (1985), in a study commissioned by the National Association of Secondary School Principals, the National Assocation of Elementary School Principals, and the Association of American School Administrators, reviewed the various incentive plans that had been proposed and came up with five categories of incentives. These five categories will be used to organize the discussion of how school districts have attempted to motivate teachers through incentives.

The first category of incentives is compensation plans. Of the seven different types of compensation plans (merit pay; modified salary schedule; bonuses; market sensitive salaries; salary differentiation based on job factors; loan forgiveness and scholarships; grants, sabbaticals, and training; and modifications in base salaries and

benefits) mentioned by Cresap, McCormick, and Paget, Inc. (1985), merit pay received the most attention in the professional literature and the media.

Merit pay has always seemed more logical to the public than to the members of the education profession. To the public it only seems right that a teacher who performs more effectively than another should get higher pay--in other words, that pay should be tied to performance. As logical as this concept may seem, there were several problems with implementing merit pay. First of all, most school districts did not have enough resources to make merit payments high enough to be motivating. Secondly, teacher evaluation systems were so poor that it was impossible to support judgments about which teacher was more effective than another. Third, there was a fear that teachers would become competitive and cease cooperating and sharing job knowledge (Bacharach, Conley, and Shedd 1990; Rosenholtz 1986).

The second category of incentives identified by Cresap, McCormick, and Paget, Inc. (1985) was career options. Career options were an attempt to restructure the teacher's career in various ways to attract, motivate, and retain larger numbers of highly qualified teachers. Included in this category were career ladders, teaching as a short-term career, part-time and joint appointments, and greater use of early retirement. Career ladders are plans that allow promotion (with accompanying salary increases and work enrichment) through several levels, including some combination of entry, continuing, senior, and master categories. Career ladders were recommended in at least one of the national reform reports, *Tomorrow's Teachers* (The Holmes Group 1986), and were implemented by several states including Tennessee, North Carolina, and Arizona.

According to Bacharach, Conley, and Shedd (1990), career ladder plans are generally attractive to teachers except for two features. One feature that teacher unions object to is job differentiation. In a career ladder, the occupation of teaching is broken up into several jobs, the lowest one being the classroom teacher. The highest jobs on the

teaching career ladder involve supervisory or program development outside the classroom, which implies that work in the classroom is the lowest level in the profession. In addition, specifying that certain duties are limited to teachers at certain steps on the career ladder virutally assures that there will be quotas, the other feature that is repugnant to teacher unions.

The third category of incentives was enhanced professional responsibilities (Cresap, McCormick, and Paget, Inc. 1985). The impetus for this notion comes from the fact that teachers' salaries are lower than comparable professions because they are only paid for nine to ten months of work annually. One solution to this problem is to find ways of expanding teachers' professional responsibilities so that they can be paid for more hours of work annually. One way that this can be accomplished is by designating selected teachers as master teachers and giving them responsibilities for supervision, curriculum development, mentoring, and other activities beyond classroom teaching. Another way to expand the teaching year is to move to a longer school day or longer school year.

A fourth category of incentives was nonmonetary recognition (Cresap, McCormick, and Paget, Inc. 1985). There are many ways that a school distict can recognize teachers without spending a great deal of money. Awards and other forms of recognition can motivate effort and improvement. Some examples are Teacher of the Year, district-sponsored award dinners, and articles about teachers' special accomplishments.

The fifth and final category that was identified by Cresap, McCormick, and Paget, Inc. (1985) was improved working conditions. Some experts believe that the United States educational system is structured in such a way that it hinders teachers from doing an effective job (McLaughlin et al. 1986; Rosenholtz 1989). These same researchers suggest that school districts have some control over organizational features and workplace conditions such as class composition and student discipline, availability of supplies and materials, administrative actions including teacher evaluation, isolation of teachers,

opportunity for professional growth, and lack of recognition. They believe that the preceding contitions can be managed in a way that "yield the professional success and personal job satisfaction that will bind effective teachers to the profession" (McLaughlin et al. 1986, p. 424).

Summary

In this review of literature the factors that influence teachers' updating of skills and knowledge related to teaching were examined. The research and scholarly literature in the areas of staff development, the knowledge base of teaching, career development of teachers, the Expectancy Theory of Motivation, and the rewards of teaching were reviewed. In these final paragraphs the scholarly literature reviewed in this chapter will be summarized and the relationship to the thesis of this dissertation will be clarified.

As school districts and teachers work together to identify ways for teachers to update their professional skills and knowledge, an understanding of the current research on staff development is essential. For instance, scholars in this area essentially are in agreement on the necessary components of a successful staff development program. In addition, researchers have shown how traditional inservice training can be more successful as well as having identified promising new approaches to updating professional skills and knowledge.

As scholars attempt to define and categorize the knowledge base of teaching, many are suggesting that there is a core of knowledge that teachers must possess to do their jobs effectively. There is, as yet, little consensus on what constitutes an essential knowledge base for teachers. Nevertheless, it is probably important for teachers to know that certain teacher behaviors have a positive effect on student achievement test scores. Current research on subject-specific pedagogical knowledge suggests that the best ways to represent content area concepts to students are subject-specific, require a comprehensive understanding of the subject area, and can be learned by teachers. Consequently,

pedagogical knowledge in subject-specific areas may be important for teachers to possess. The cursory review of the knowledge base of teaching in this chapter implies, at the very least, that teachers who are not engaged in some updating activity are in danger of becoming obsolete rather quickly.

The career development of teachers affects updating activities. The fact that teachers in the same building may be at any one of several developmental or career stages is beyond argument. Researchers are now attempting to discover how different stages or levels of career development affect the way that teachers think, behave, or engage in updating activities. The research on career development has at least shown the necessity of individualizing updating activities so that a variety of developmental needs may be met.

The research on career development has shown that needs of teachers may be very different depending on their career levels. The Expectancy Theory of Motivation is a model that accepts the fact that individuals are motivated differently. This theory suggests that effort is a combination of expectancy (the belief that effort will lead to a level of performance), instrumentality (the belief that a level of performance will result in obtaining desired outcomes), and valence (the attractiveness of certain rewards or outcomes). For instance, expectancy theory would predict that if a teacher believes that participating in an inservice activity will result in an increase in skills and knowledge, believes that an increase in skills and knowledge will result in obtaining a desired outcome, and finds the outcome very desirable, he or she will be motivated to participate in that activity. The implication for school districts that desire to have teachers participate in updating activities is to provide opportunities that teachers believe will result in higher levels of professional competency, provide incentives for increased skills and knowledge that are attractive to teachers, and make sure that these rewards can be obtained as a result of a higher level of professional competency.

An important part of motivation is making available rewards that are attractive to individuals. Research on the rewards of teaching suggests that intrinsic rewards are more powerful for teachers than extrinsic rewards. There is some speculation that this is true because extrinsic rewards, at a significant level, have seldom been available to teachers. At any rate, knowledge of rewards that are important and available to teachers for updating their skills and knowledge is especially important to interest reluctant teachers in updating.

CHAPTER III

METHODOLOGY

This study attempted to determine the perceptions of experienced elementary teachers, at three career stages, regarding the relationships between participating in various professional development activities and remaining professionally up-to-date. It attempted to determine the perceptions of the same population regarding remaining professionally up-to-date and attaining desired outcomes and rewards.

Population Studied

Full-time K-6 elementary classroom teachers in North Dakota who had at least three years of teaching experience were the population surveyed for this study. The version of the *Career Awareness Index* (DeMoulin 1990) used to identify the career level of each teacher was designed to use with teachers with more than three years of experience.

Since the two instruments used to gather the data were quite long, it was determined that cluster sampling would probably obtain the best return of usable instruments. Cluster sampling involves choosing sites where a "cluster" of individuals can be surveyed. For this study, a random sample of one hundred elementary school principals was contacted and asked to administer the Valence, Instrumentality, and Expectancy (VIE) Survey and the *Career Awareness Index* (CAI) to all teachers in their building with at least three years of experience. The goal was to obtain usable instruments from two hundred experienced elementary school teachers.

Instruments

Career Awareness Index (CAI)

The *Career Awareness Index* is the current form of an instrument called the *Career Development Indicator* that was developed as a result of research conducted with teachers and principals to identify positive (performance) attributes and negative (stress) attributes associated with personal efficacy and achievement (DeMoulin 1990). As a result of this research, four different levels of career development were theorized: Provisional, Developmental, Transitional, and Decelerating. As the instrument was refined, the four levels were characterized as Operational, Developmental, Transitional, and Devocational. The four career levels are described as follows (DeMoulin 1991):

> Operational: This level contains a slightly higher ratio of positive to negative elements with stress playing an active but confined role; hence efficacy levels are good, being slightly above norm. Conditions within this level represent an individual who is either new to the work force, an individual who has had a position change, or an individual who perceives acceptable levels of performance, but is hindered by extraneous factors.
>
> Developmental: A large quantity of descriptors in this level indicates an abundance of positive elements with individuals perceiving high efficacy. This level portrays optimum conditions that relate to a heightened awareness of desired attributes, attitudes, or skills necessary for high efficacy. This level also signifies preferred combinations of performance and stress.
>
> Transitional: This level begins the transformation of the ratio between positive and negative attributes as the ratio bends towards the negative side. Hence, attributes of stress become noticeable as the individual can be characterized by emotional adjustments concerning efficacy or by a decline in job satisfaction. When this transformation is complete, less motivation for job completion, job fulfillment, or personal achievement may be the less than desired outcome.
>
> Devocational: This level represents hard-line stressors that can be synonymous with burnout. Conditions are therefore favored for an individual to exhibit symptoms associated with physical, emotional, or mental exhaustion. Individuals associated with this level are at high risk of burnout. Performance decline is therefore most likely to result from repeated emotional stimulation associated with intense involvement with people over an extended period of time. This level is characterized by inward or outward expressions involving negative attitudes toward work, life, self, or other extraneous factors. Attributes of stress have become the dominant force (p. 3).

The new instrument was then extensively tested with several types of education professionals, and versions of the instrument were developed for preservice teachers, novice teachers (first or second year), experienced teachers (three or more years), administrators (elementary, middle, high school), and higher education (teaching ranks). According to DeMoulin (1990), each of the attributes is associated with one of the performance levels and has been thoroughly tested utilizing Principal Component Factor Analysis, Factoral Analysis of Variance, and Multiple Regression. Construct validity has been established through Principal Component Factor Analysis and by responses of a panel of experts (DeMoulin 1990). Internal consistency was calculated for each instrument of the CAI and was recorded as follows (DeMoulin 1990, p. 7):

Instrument	Internal Consistency
Pre Test (Preservice Teachers)	.913
Post Test (Preservice Teachers)	.902
Novice Teachers (First or Second Year)	.875
Experienced Teachers (Three or More Years)	.817
Administrators (Elementary, Middle, HS)	.798
Higher Education (Teaching Ranks)	.843

The version of the instrument used for this study was for experienced teachers. This version was described thus (DeMoulin 1990):

> Research has indicated that after two years of experience in education, teachers exhibit similar needs and interest for professional development. In other words, the interrelationship for performance and stress indicators display comparable results that allow the CAI to adequately measure personal performance and suggest appropriate individualized professional activities associated with a particular level of development. Hence, in any professional development activity, participants will display like needs and interests (p. 9).

Valence, Instrumentality, and Expectancy (VIE) Survey

Although expectancy theory was introduced in chapter one and discussed further in chapter two as the theoretical underpinning of this study, it is useful to review briefly its tenets in this chapter. Expectancy theory suggests that three kinds of information are necessary in order to understand and predict an individual's motivation and behavior. These are expectancy beliefs, instrumentality beliefs, and valences of outcomes.

Expectancy refers to the individual's belief that personal effort expenditure will result in the attainment of some level of performance or state of being. In the area of the updating of professional knowledge and skills of teachers, expectancy beliefs are the conviction that participation in a certain professional development activity will result in updated knowledge or skill. *Instrumentality* refers to the individual's belief that the attainment of some level of performance or state of being will affect the outcomes or rewards to be received by the individual. When applied to the area of the updating of professional knowledge and skills of teachers this refers to the extent that the teacher believes that updating of knowledge and skills will influence the kinds and amounts of work-related outcomes. *Valence* of outcomes refers to the individual teacher's degree of desire for or aversion to various work-related outcomes or rewards.

After reviewing the educational literature, this investigator found no instruments that would measure the expectancy beliefs of teachers regarding professional development activities or any instrument that would measure the instrumentality beliefs of teachers regarding professional competence and desired outcomes. Eventually, as related literature in the field of business and industry was examined, a survey used to measure the expectancy and instrumentality beliefs of engineers regarding updating activities was found. The survey was developed to measure the perceptions of engineers regarding the relationships between participating in various updating activities and remaining technically up-to-date (expectancy beliefs) and their perceptions regarding relationships between remaining up-to-date and attaining desired outcomes (instrumentality beliefs) (Farr et al. 1984).

The survey prepared by Farr et al. (1984) was used as a pattern for the instrument developed for this study. The format and items changed considerably as the instrument for this study was revised according to related literature and the opinion of a panel of experts.

A list of forty professional development activities was created from a review of related literature (Harris 1989; Herzog 1984; Ryan 1987). A similar review was conducted to establish a list of fifty-nine outcomes that might result from becoming more up-to-date in knowledge and skills related to teaching (McDonnell, Christensen, and Price 1989; Randklev 1984; Wright 1985). The list of professional development activities and the list of possible outcomes were revised, edited, and expanded by a panel of experts. This panel consisted of two professors of educational administration, one professor of educational research and statistics, two practicing elementary principals, and two doctoral students with experience in elementary school administration. Four members of the panel were women and three were men. Two members of the panel were Native American.

The list of professional development activities and the list of outcomes were returned to the investigator with suggestions for revision. As the list of professional development activities and the list of outcomes were revised, the items were placed into categories. The list of professional development activities was grouped by similar items into the categories of Workshops, University Coursework, Conferences, Individual Activities, Professional Activities, and Collegial Activities. Assuming that the reader is familiar with Workshops, University Coursework, and Conferences, only Individual Activities, Professional Activities, and Collegial Activities will be explained. Individual Activities are activities undertaken by the individual to update skills and knowledge. Individual Activities would include such activities as reading journals or viewing instructional videotapes. Professional Activities are the work that teachers do as a result of being a professional and that may contribute to the teacher becoming more up-to-date. Professional Activities would include such activities as curriculum development or serving as a member of a task force. Collegial Activities are those updating activities in which teachers help other teachers or are helped by colleagues to become more up-to-date. Examples of Collegial Activities would include such activities as coaching a colleague in a

new technique or discussing educational issues with a colleague. The investigator's choice of categories for the professional development items was influenced by a study conducted by Burke et al. (1987).

The list of outcomes was also grouped into categories of similar items. The categories, suggested in a comprehensive study of teacher incentives by Cresap, McCormick and Paget, Inc. (1985) and research by Lortie (1975), were Monetary Rewards, Non-monetary Recognition, Working Conditions, Career Status, Expanded Responsibilities, and Psychic Rewards. Monetary Rewards are obviously those to which a monetary value is attached. Non-monetary Recognition rewards involve recognition but not by monetary means. Working Conditions rewards or incentives make it easier and more pleasant for a teacher to work. Examples of Working Conditions outcomes would include such activities as being assigned to work with a friendly faculty or securing adequate supplies and equipment. Career Status outcomes are those that elevate the status of the person or the position. An example of a Career Status outcome might include being assigned be teach in a school with a good academic reputation. Expanded Responsibilities are rewards that come from increased professional responsibility such as being chosen to serve as a mentor teacher or being offered a promotion. Psychic Rewards are those intrinsic rewards that have to do with a teacher's own perception of increased effectiveness. An example of Psychic Rewards includes feeling one is meeting the needs of the students more effectively, thus satisfying a desire for excellence.

The edited lists were again examined by the panel of experts. The panel suggested no changes in the categories and only minor changes in the list of professional development activities and the list of possible outcomes resulting from being up-to-date in skills and knowledge related to teaching. The VIE Survey in its final form appears in appendix C. One of the research questions addressed in this study was are the rewards that are the most important to teachers for remaining up-to-date in teaching methods

extrinsic or intrinsic? A related question was are there any differences in how experienced elementary teachers at the operational, developmental, transitional, or devocational levels perceive the importance of intrinsic and extrinsic outcomes?

The items in the outcomes section of the VIE Survey were designated either extrinsic or intrinsic according to definitions by Lortie (1975). According to Lortie, extrinsic rewards are those which are usually thought of as "earnings" attached to a job and involve money, income, status, and power over others. These are extrinsic in the sense that they exist independently of the individual who occupies the job. These have an objective quality.

Intrinsic rewards, Lortie (1975) goes on, are entirely subjective valuations made in the course of work. Their subjectivity means that they can vary from person to person. Three examples of intrinsic rewards are increased student learning, increased effectiveness as a teacher, and satisfaction from completing a difficult project. Appendix G shows the items designated intrinsic and extrinsic.

Data Collection

Each of the elementary principals in the random sample who agreed to participate was asked, in a letter, to administer the instruments to all teachers in the building with three or more years of experience (appendix A). A packet containing the *Career Awareness Index* (CAI) and the VIE Survey, a ten-item demographic questionnaire (appendix D), and an explanation of the study (appendix B) was included. A follow-up phone call asking if they had any questions was made a week later.

Fifty out of one hundred principals agreed to request the teachers with more than three years of experience to complete the instruments in the packet and to send them back to the investigator. A decision was made not to contact all the principals in the original sample of one hundred. The reason was that a large percentage of the elementary principals in North Dakota are employed by the four largest school districts. It became

important to balance the numbers of teachers from school districts of various sizes. Consequently, a number of principals from larger districts were not contacted. In addition, there were several school districts and principals that declined to participate. Approximately five hundred surveys were mailed. A total of 243 usable surveys were returned.

The scores from the usable CAI instruments were transferred to answer sheets for scanning. The answer sheets were sent to the developer of the instrument, Dr. Donald DeMoulin, who scored them and sent back a computer printout showing the career level for each teacher who completed an instrument. Teachers completing the VIE Survey were asked to rate each updating activity and outcome using a five-point Likert scale. The VIE Survey was scored by the Bureau of Educational Services and Applied Research at the University of North Dakota for the Professional Development Activities (Expectancy) section and for the Outcomes (Valence and Instrumentality) section.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS-X) was used to analyze the data. The first relationship to be examined was how teachers perceived the professional development categories and the outcomes categories. The *t* tests were used to test the differences in the categories of professional development activities based on how teachers perceived their usefulness for updating skills and knowledge. The *t* tests were also used to test the differences in the categories of outcomes resulting from being up-to-date in skills and knowledge based on how teachers perceived their importance.

The second statistical test used was Analysis of Variance (ANOVA). ANOVA was used to test the differences between levels of independent variables. ANOVA was used to test the differences of perceptions of teachers based on experience, grade level, size of school district, and career level regarding effectiveness of professional development

activities and the importance of outcomes as a result of being up-to-date. Scheffé Multiple Contrast was used to determine where the differences were when there were more than two groups.

The third statistical test used was the *F* test of Pearson Product Moment Correlation Coefficient. This test was a within-subject test used to test the correlations of the perceptions of teachers regarding the effectiveness of professional development activities and their participation in those activities. In addition, correlation was used to test the significance of relationships of teachers' perceptions regarding the importance and availability of outcomes with participation in professional development activities.

The fourth statistical test used was Chi-square. This test was used to test the relationship of the career levels of the teachers in the study with the age categories, experience levels, grade levels, and sizes of school districts of the teachers in the study.

The methodology of the study was presented in this chapter. It included the method of identifying a sample, designing the instruments, collecting the data, and analyzing the data. In chapter four, the data that were collected for this study will be presented in tables and in text.

CHAPTER IV

RESULTS AND ANALYSIS

The purpose of this study was to examine how teachers, at various career levels, perceive the effectiveness of professional development activities. In addition, this study examined the perceptions of experienced elementary teachers regarding the outcomes of being up-to-date in skills and knowledge related to teaching. A total of 243 experienced elementary teachers were surveyed to determine their career level and their perceptions regarding selected professional development activities and outcomes resulting from being up-to-date in skills and knowledge related to teaching. Teachers were categorized by age, experience, grade level taught, size of school district, and career level for the purposes of comparison.

The data have been analyzed and statistically tested. In the text that follows each table, significant relationships are discussed. The reader can assume that when a relationship is identified as significant it has a probability of less than .05. When differences are reported within groups it is because differences were identified using the Scheffé Multiple Contrast test.

Nine research questions guided this study. Each research question is presented and following it are the results relevant to that question.

1. In what ways do experienced elementary teachers perceive that various professional development activities contribute to remaining up-to-date in skills and knowledge related to teaching?

Participants were asked to rate thirty-one professional development activities according to their perceived effectiveness for updating skills and knowledge related to teaching. These thirty-one activities were arranged into six categories for convenience in compiling and analyzing the data. The six categories were Workshops, University Coursework, Conferences, Individual Activities, Professional Activities, and Collegial Activities. Assuming that the reader is familiar with Workshops, University Coursework, and Conferences, only Individual Activities, Professional Activities, and Collegial Activities will be explained. Individual Activities are activities undertaken by the individual to update skills and knowledge. Individual Activities would include such activities as reading journals or viewing instructional videotapes. Professional Activities are the work that teachers do as a result of being a professional and that may contribute to the teacher becoming more up-to-date. Professional Activities would include such activities as curriculum development or serving as a member of a task force. Collegial Activities are those updating activities in which teachers help other teachers or are helped by colleagues to become more up-to-date. Examples of Collegial Activities would include such activities as coaching a colleague in a new technique or discussing educational issues with a colleague. See appendix E for the activities included in each category.

Table 1 shows the order in which the categories of professional development activities were perceived as contributing to remaining up-to-date in skills and knowledge related to teaching based on the mean ratings for all the items in that category. These means were compared for significant differences using the related *t* test. University Coursework, Workshops, and Conferences were rated significantly higher than the other categories. There was no significant difference between these three activities rated most effective. Collegial Activities were rated the fourth most effective professional development activities, Individual Activities were rated fifth, and Professional Activities were rated sixth. These last three categories were significantly different from each other and from the top three.

TABLE 1

THE *t* TEST COMPARISONS OF PROFESSIONAL DEVELOPMENT ACTIVITIES ACCORDING TO PERCEIVED EFFECTIVENESS (N=243)

	Mean	*t* Value	Probabilities
University Coursework	4.160		
		0.040	0.969
Workshops	4.148		
		0.340	0.733
Conferences	4.136		
		2.320	0.021
Collegial Activities	3.992		
		6.340	<.001
Individual Activities	3.692		
		3.720	<.001
Professional Activities	3.516		

Table 2 shows how experienced elementary teachers in three age categories--21-35, 36-45, and over 45--perceived the effectiveness of various professional development activities. ANOVA identified no significant differences in the way teachers in the three age groups perceived the effectiveness of Workshops, Conferences, Individual Activities, or Collegial Activities. However, as teachers became older they perceived Professional Activities and University Coursework to be significantly less effective for updating than did younger teachers.

Table 3 shows how experienced elementary teachers at three levels of experience--up to 10 years, 11-20 years, and over 20 years--perceived the effectiveness of various professional development activities. ANOVA identified no significant differences in the way experienced teachers perceived the effectiveness of Workshops, Conferences, Individual Activities, or Collegial Activities. More experienced teachers perceived

University Coursework and Professional Activities to be significantly less effective than did teachers with less experience.

TABLE 2

ANOVA COMPARISONS OF PERCEIVED EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES BY ELEMENTARY TEACHERS IN THREE AGE CATEGORIES

	Workshops	University Coursework	Conferences	Individual Activities	Professional Activities	Collegial Activities
21-35 (N=62)	4.102	4.379	4.178	3.855	3.669	3.978
36-45 (N=102)	4.134	4.378	4.177	3.680	3.590	4.108
Over 45 (N=78)	4.231	3.744	4.071	3.579	3.313	3.862
F Ratio	0.479	14.577	0.281	2.073	0.347	1.979
F Probability	0.620	<.001	0.755	0.128	0.033	0.141

TABLE 3

ANOVA COMPARISONS OF PERCEIVED EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES BY ELEMENTARY TEACHERS AT THREE LEVELS OF EXPERIENCE

	Workshops	University Coursework	Conferences	Individual Activities	Professional Activities	Collegial Activities
Up to 10 (N=70)	4.162	4.529	4.329	3.788	3.753	4.077
11-20 (N=102)	4.137	4.260	4.064	3.726	3.517	4.039
Over 20 (N=71)	4.183	3.655	4.050	3.549	3.283	3.840
F Ratio	0.065	19.404	1.735	1.726	5.219	1.741
F Probability	0.937	<.001	0.179	0.180	0.006	0.178

Table 4 shows how experienced elementary teachers at the primary (K-3) grade level and the upper (4-6) grade level perceived the effectiveness of various professional development activities. ANOVA identified no significant difference in the way primary and upper grade teachers perceived the effectiveness of Workshops, University Coursework, Conferences, Professional Activities, or Collegial Activities. However, teachers in the upper grade levels rated Individual Activities significantly less effective than did primary teachers.

TABLE 4

ANOVA COMPARISONS OF PERCEIVED EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES BY ELEMENTARY TEACHERS IN THE PRIMARY AND INTERMEDIATE GRADES

	Workshops	University Coursework	Conferences	Individual Activities	Professional Activities	Collegial Activities
Gr. K-3 (N=129)	4.251	4.175	4.221	3.796	3.583	4.090
Gr. K-6 (N=103)	4.084	4.136	4.039	3.579	3.490	3.893
F Ratio	2.338	0.098	1.803	4.266	0.665	3.316
F Probability	0.128	0.754	0.181	0.040	0.416	0.070

Table 5 shows how experienced elementary teachers in various sized school districts--0-500 students, 501-1000 students, 1001-3500 students, and over 3500 students--perceived the effectiveness of various professional development activities. ANOVA identified no significant differences in how teachers in various sized districts perceived the effectiveness of the professional development activities.

TABLE 5

ANOVA COMPARISONS OF PERCEIVED EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES BY ELEMENTARY TEACHERS IN VARIOUS SIZED SCHOOL DISTRICTS

	Workshops	University Coursework	Conferences	Individual Activities	Professional Activities	Collegial Activities
0-500 (N=51)	4.124	4.069	4.098	3.726	3.498	3.998
501-1000 (N=60)	4.122	4.142	4.234	3.706	3.468	3.910
1001-3500 (N=77)	4.190	4.351	4.156	3.673	3.653	4.076
Over 3500 (N=39)	4.282	4.090	4.154	3.667	3.510	4.061
F Ratio	0.374	1.286	0.165	0.062	0.607	0.500
F Probability	0.772	0.280	0.920	0.980	0.611	0.683

Elementary teachers with more than three years of experience seem to prefer University Coursework, Workshops, and Conferences for updating. Significant differences were noted in the perceptions of teachers at different ages, experience levels, and grade levels regarding the effectiveness of various updating activities. Where differences were identified, they were between older and younger teachers, veteran and less experienced teachers, and upper and lower grade teachers.

2. What are the most desired outcomes of experienced elementary teachers for being up-to-date in skills and knowledge related to teaching?

Participants were asked to rate the desirability of forty-five outcomes that might come as a result of being up-to-date in skills and knowledge related to teaching. These forty-five outcomes were arranged into six categories for convenience in analyzing and reporting the data. The six categories are Monetary Rewards, Non-monetary Recognition, Working Conditions, Career Status, Expanded Responsibilities, and Psychic Rewards.

Monetary Rewards are obviously those to which a monetary value is attached. Non-monetary Recognition rewards involve recognition but not by monetary means. Working Conditions rewards or incentives make it easier and more pleasant for a teacher to work. Examples of Working Conditions outcomes would include such activities as being assigned to work with a friendly faculty or securing adequate supplies and equipment. Career Status outcomes are those that elevate the status of the person or the position. An example of a Career Status outcome might include being assigned to teach in a school with a good academic reputation. Expanded Responsibilities are rewards that come from increased responsibility such as being chosen to serve as a mentor teacher or being offered a promotion. Psychic Rewards are those intrinsic rewards that have to do with a teacher's own perception of increased effectiveness. An example of Psychic Rewards includes feeling one is meeting the needs of the students more effectively, thus satisfying a desire for excellence. See appendix F for the outcomes included in each category.

Table 6 shows the order in which the categories of outcomes were perceived as being the most important. Psychic Rewards was rated significantly higher than any of the other groups. Working Conditions was rated the second highest and significantly higher than the remaining categories. Likewise, Monetary Rewards was rated third and significantly different from the remaining categories. Non-monetary Recognition was rated fourth and also significantly higher than the remaining two categories. Career Status and Expanded Responsibilities were rated fifth and sixth and there was no significant difference between these two.

Table 7 shows how experienced elementary teachers in three age categories--21-35, 36-45, and over 45--perceived the importance of outcomes as a result of updating. ANOVA revealed no significant differences in how teachers at different ages rated Non-monetary Recognition or Working Conditions. However, older teachers rated

Monetary Rewards, Psychic Rewards, Career Status, and Expanded Responsibilities significantly less important than did younger teachers.

TABLE 6

THE *t* TEST COMPARISONS OF OUTCOMES ACCORDING TO PERCEIVED IMPORTANCE (N=242)

	Mean	*t* Value	Probabilities
Psychic Rewards	4.337		
		3.430	<.001
Working Conditions	4.229		
		12.240	<.001
Monetary Rewards	3.801		
		4.100	<.001
Non-monetary Recognition	3.609		
		11.140	<.001
Career Status	3.159		
		1.730	0.085
Expanded Responsibilities	3.097		

TABLE 7

ANOVA COMPARISONS OF IMPORTANCE OF OUTCOMES AS A RESULT OF UPDATING AS RATED BY ELEMENTARY TEACHERS IN THREE AGE CATEGORIES

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
21-35 (N=62)	3.926	3.730	4.228	3.339	3.391	4.377
36-45 (N=102)	3.849	3.606	4.251	3.214	3.217	4.412
Over 45 (N=78)	3.639	3.498	4.195	2.954	2.701	4.213
F Ratio	3.085	1.673	0.237	7.789	17.155	4.335
F Probability	0.048	0.190	0.790	<.001	<.001	0.014

Table 8 shows how elementary teachers at three different levels of experience perceived the importance of outcomes as a result of updating. ANOVA identified no significant difference in how teachers at different levels of experience perceived the importance of the outcomes categories of Monetary Rewards, Non-monetary Recognition, Working Conditions, or Psychic Rewards. However, teachers with more experience rated Expanded Responsibilities and Career Status significantly lower in importance than did less experienced teachers.

TABLE 8

ANOVA COMPARISONS OF IMPORTANCE OF OUTCOMES AS A RESULT OF UPDATING AS RATED BY ELEMENTARY TEACHERS AT THREE LEVELS OF EXPERIENCE

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
Up to 10 (N=70)	3.853	3.606	4.149	3.291	3.310	4.386
11-20 (N=102)	3.882	3.642	4.289	3.165	3.205	4.379
Over 20 (N=71)	3.634	3.565	4.222	3.020	2.756	4.231
F Ratio	2.709	0.213	1.430	3.505	11.885	2.633
F Probability	0.069	0.808	0.241	0.032	<.001	0.074

Table 9 shows how elementary teachers who teach primary grades (K-3) and those who teacher upper grades (4-6) perceived the importance of outcomes as a result of updating. ANOVA identified no significant differences in the way primary and upper grade teachers rated the importance of Career Status, Expanded Responsibilities, or Psychic Rewards. Intermediate teachers rated Monetary Rewards, Non-monetary Recognition, and Working Conditions as significantly less important than did primary teachers.

TABLE 9

ANOVA COMPARISONS OF IMPORTANCE OF OUTCOMES AS A RESULT OF UPDATING AS RATED BY ELEMENTARY TEACHERS IN THE PRIMARY AND INTERMEDIATE GRADES

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
Gr. K-3 (N=129)	3.918	3.711	4.374	3.155	3.085	4.399
Gr. 4-6 (N=103)	3.663	3.497	4.078	3.157	3.092	4.280
F Ratio	6.961	4.866	19.272	0.001	0.004	3.706
F Probability	0.009	0.028	<.001	0.978	0.952	0.055

Table 10 shows how experienced elementary teachers in four school district enrollment categories--0-500, 501-1000, 1001-3500, and over 3500 students--rated the importance of outcomes as a result of updating. ANOVA revealed no significant differences in how teachers in various sized school districts rated Non-monetary Recognition, Working Conditions, Career Status, Expanded Responsibilities, or Psychic Rewards. Teachers in school districts with enrollment from 1001-3500 students rated Monetary Rewards significantly more important than did teachers in other school districts.

Teachers rated Psychic Rewards as significantly preferable to other outcomes for being up-to-date in skills and knowledge. Teachers differed significantly by age, experience, grade level, and size of school district in how they perceived the value of the outcomes categories. When differences were identified, they were between older and younger teachers, veteran and less experienced teachers, and upper and lower grade teachers.

TABLE 10

ANOVA COMPARISONS OF IMPORTANCE OF OUTCOMES AS A RESULT OF UPDATING AS RATED BY ELEMENTARY TEACHERS IN VARIOUS SIZED SCHOOL DISTRICTS

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
0-500 (N=51)	3.667	3.675	4.105	3.220	3.087	4.275
501-1000 (N=60)	3.612	3.502	4.211	3.110	3.041	4.310
1001-3500 (N=77)	3.993	3.666	4.284	3.161	3.182	4.364
Over 3500 (N=39)	3.769	3.615	4.222	3.159	3.085	4.420
F Ratio	3.728	0.662	1.149	0.277	0.383	0.825
F Probability	0.012	0.576	0.330	0.842	0.765	0.481

3. What are the perceptions of experienced elementary teachers regarding how being up-to-date in skills and knowledge related to teaching will help them attain desired outcomes?

Participants were asked to rate the chance of receiving each of forty-five outcomes if they became more up-to-date in skills and knowledge related to teaching. These forty-five outcomes were arranged into the same six categories as for the previous question. The six categories are Monetary Rewards, Non-monetary Recognition, Working Conditions, Career Status, Expanded Responsibilities, and Psychic Rewards.

Table 11 shows how experienced elementary teachers perceived the likelihood of receiving the various outcomes as a result of being up-to-date in skills and knowledge related to teaching. Psychic Rewards was perceived as being significantly more likely to be received as a result of being up-to-date than any of the other outcomes. The next three outcomes categories--Non-monetary Recognition, Expanded Responsibilities, and Career

Status--had no significant differences between them. The fifth rated outcomes category, Monetary Rewards, was rated as being significantly less available than the top four. The sixth rated outcomes category, Working Conditions, was rated as being significantly less available as a result of being up-to-date than the other five categories.

TABLE 11

THE *t* TEST COMPARISONS OF OUTCOMES ACCORDING TO PERCEIVED AVAILABILITY AS A RESULT OF UPDATING (N=242)

	Mean	*t* Value	Probabilities
Psychic Rewards	4.193		
		15.440	<.001
Non-monetary Recognition	3.715		
		0.290	0.775
Expanded Responsibilities	3.708		
		1.950	0.052
Career Status	3.667		
		5.890	<.001
Monetary Rewards	3.486		
		5.150	<.001
Working Conditions	3.353		

Table 12 shows how experienced elementary teachers in three age categories--21-35, 36-45, and over 45--perceived the likelihood of obtaining outcomes as a result of being up-to-date in skills and knowledge related to teaching. ANOVA identified no significant differences in how teachers at different ages perceived the availability of the outcomes categories of Monetary Rewards, Non-monetary Recognition, or Working Conditions. However, older teachers perceived Career Status, Psychic Rewards, and Expanded Responsibilities significantly less available than did younger teachers.

TABLE 12

ANOVA COMPARISONS OF PERCEPTIONS OF THE LIKELIHOOD OF OBTAINING DESIRED OUTCOMES BY UPDATING ACCORDING TO ELEMENTARY TEACHERS IN THREE AGE CATEGORIES

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
21-35 (N=62)	3.539	3.816	3.346	3.777	3.875	4.377
36-45 (N=102)	3.508	3.728	3.348	3.704	3.747	4.412
Over 45 (N=78)	3.423	3.630	3.386	3.546	3.533	4.213
F Ratio	1.187	2.232	0.201	3.833	8.732	4.335
F Probability	0.307	0.110	0.818	0.023	<.001	0.014

Table 13 shows how elementary teachers at three levels of experience perceived the likelihood of obtaining outcomes as a result of being up-to-date in skills and knowledge related to teaching. ANOVA identified no significant differences in how teachers at different levels of experience perceived the availability of the outcomes categories of Monetary Rewards, Non-monetary Recognition, Working Conditions, or Psychic Rewards. However, teachers with more experience perceived outcomes in the categories of Career Status and Expanded Responsibilities as significantly less likely to be available than did teachers with less experience.

Table 14 shows how experienced elementary teachers who teach primary (K-3) grades and those who teach upper (4-6) grades perceived the likelihood of obtaining outcomes as a result of being up-to-date in skills and knowledge related to teaching. ANOVA identified no significant differences in how teachers who teach primary and upper grades perceived the likelihood of obtaining outcomes in the categories of Non-monetary Recognition, Working Conditions, Career Status, Expanded Responsibilities, or Psychic

Rewards. However, teachers who teach upper grades perceived Monetary Rewards as significantly less likely to be obtained as a result of being up-to-date than did teachers who teach primary grades.

TABLE 13

ANOVA COMPARISONS OF PERCEPTIONS OF THE LIKELIHOOD OF OBTAINING DESIRED OUTCOMES BY UPDATING ACCORDING TO ELEMENTARY TEACHERS IN THREE EXPERIENCE CATEGORIES

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
Up to 10 (N=70)	3.553	3.798	3.357	3.800	3.867	4.386
11-20 (N=102)	3.455	3.695	3.315	3.657	3.723	4.379
Over 20 (N=71)	3.465	3.664	3.404	3.552	3.529	4.231
F Ratio	0.983	1.293	0.790	4.084	8.241	2.633
F Probability	0.376	0.276	0.455	0.018	<.001	0.074

TABLE 14

ANOVA COMPARISONS OF PERCEPTIONS OF THE LIKELIHOOD OF OBTAINING DESIRED OUTCOMES BY UPDATING ACCORDING TO ELEMENTARY TEACHERS IN THE PRIMARY AND INTERMEDIATE GRADES

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
Gr. K-3 (N=129)	3.565	3.759	3.380	3.637	3.703	4.236
Gr. 4-6 (N=103)	3.395	3.666	3.306	3.691	3.708	4.155
F Ratio	7.323	1.830	1.479	0.609	0.005	1.764
F Probability	0.007	0.178	0.225	0.436	0.944	0.186

Table 15 shows how experienced elementary teachers in four sizes of school districts--0-500, 501-1000, 1001-3500, and over 3500 students--perceived the likelihood of obtaining desired outcomes as a result of being up-to-date in skills and knowledge related to teaching. ANOVA identified no significant differences in how elementary teachers in various sized school districts perceived obtaining outcomes as a result of being up-to-date.

TABLE 15

ANOVA COMPARISONS OF PERCEPTIONS OF THE LIKELIHOOD OF OBTAINING DESIRED OUTCOMES BY UPDATING ACCORDING TO ELEMENTARY TEACHERS IN DIFFERENT SIZED SCHOOL DISTRICTS

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
0-500 (N=51)	3.557	3.807	3.429	3.824	3.838	4.196
501-1000 (N=60)	3.481	3.624	3.298	3.620	3.652	4.200
1001-3500 (N=77)	3.464	3.751	3.336	3.631	3.683	4.167
Over 3500 (N=39)	3.359	3.674	3.319	3.636	3.721	4.237
F Ratio	1.321	1.319	0.877	1.783	1.214	0.192
F Probability	0.268	0.269	0.454	0.151	0.306	0.902

Teachers in this study perceived Psychic Rewards as being the outcome most likely to be obtained as a result of being up-to-date. ANOVA identified significant differences regarding the availability of rewards between older and younger teachers, veteran and less experienced teachers, and upper and lower grade teachers.

4. Are there any differences in the way experienced elementary teachers at the operational, developmental, transitional, and devocational career levels perceive how various professional development activities contribute to being up-to-date and how they perceive being up-to-date helps them attain desired outcomes?

Participants completed the *Career Awareness Index* to determine the career level at which they were functioning. Teachers who completed the survey were categorized by career level. Although there were four career levels possible depending on the score on the *Career Awareness Index*, the teachers responding to this survey fell into three levels: transitional (low productivity), operational (moderate productivity), and developmental (exceptional productivity). No teachers in this study were in the lowest, or devocational, level of career development. Although all but ten of the teachers in the study are in career levels of moderate to low productivity, this sample is comparable with the national norms.

Table 16 shows how teachers at the transitional, operational, and developmental levels perceived the effectiveness of various professional development activities. ANOVA identified no significant difference in how teachers at each level rated the effectiveness of Conferences or Collegial Activities. However, based on Scheffé configurations, teachers at the transitional level rated University Coursework significantly less effective than teachers at the developmental level. Teachers at the transitional level rated Individual Activities significantly less effective than teachers at the operational level. Teachers at the transitional level rated Workshops and Professional Activities significantly less effective than teachers at levels of higher productivity.

Table 17 shows how teachers at three career levels--transitional, operational, and developmental--perceived the likelihood of obtaining outcomes as a result of being up-to-date in skills and knowledge related to teaching. ANOVA identified no significant differences in how teachers at the three career levels perceived obtaining Monetary Rewards, Career Status, or Expanded Responsibilities. However, based on Scheffé

configurations, teachers at the transitional level perceived the outcomes of Working Conditions and Psychic Rewards as significantly less likely to be obtained than did teachers at the operational level. Teachers at the transitional level perceived the outcome of Non-monetary Recognition as significantly less likely to be obtained than did teachers at the operational or developmental level.

TABLE 16

ANOVA COMPARISONS OF PERCEPTIONS OF EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES BY ELEMENTARY TEACHERS AT THREE CAREER LEVELS

	Workshops	University Coursework	Conferences	Individual Activities	Professional Activities	Collegial Activities
Transitional (N=57)	3.942	3.939	4.088	3.450	3.268	3.807
Operational (N=176)	4.206	4.205	4.154	3.770	3.577	4.044
Developmental (N=10)	4.533	4.650	4.100	3.700	3.860	4.125
F Ratio	3.328	3.323	0.093	3.490	3.534	1.911
F Probability	0.038	0.038	0.911	0.032	0.031	0.150

There were significant differences in the way teachers at three career levels perceived the effectiveness of updating activites. Teachers in career levels of low productivity rated four out of six updating activities significantly less effective than teachers in career levels of higher productivity. There were also significant differences in how teachers at the three career levels perceived the availability of important outcomes. Teachers in career levels of low productivity perceived three out of six outcomes categories to be significantly less available than did teachers in career levels of higher productivity.

TABLE 17

ANOVA COMPARISONS OF PERCEPTIONS OF THE LIKELIHOOD OF OBTAINING DESIRED OUTCOMES ACCORDING TO ELEMENTARY TEACHERS AT THREE CAREER LEVELS

	Monetary Rewards	Non-monetary Recognition	Working Conditions	Career Status	Expanded Responsibilities	Psychic Rewards
Transitional (N=57)	3.454	3.524	3.220	3.537	3.591	4.059
Operational (N=176)	3.489	3.765	3.391	3.702	3.737	4.232
Developmental (N=10)	3.614	3.929	3.444	3.800	3.867	4.275
F Ratio	0.499	5.645	3.243	2.511	2.287	3.203
F Probability	0.608	0.004	0.041	0.083	0.104	0.042

5. Do those experienced elementary teachers who believe that participation in specific professional developmental activities results in being more up-to-date participate more in those activities?

Participants in this study were asked to rate the effectiveness of thirty-one professional development activities in six categories. Participants were also asked to share how often they had participated in the same activities in the past. The perceived effectiveness of each activity was correlated with the past participation in the activity.

Table 18 shows the positive correlation coefficients for teachers' perceptions regarding the effectiveness of professional development activities with their past participation in those activities. The perceived effectiveness of all professional development activities, except for University Coursework, was significantly correlated with the past participation in the activity.

TABLE 18

PEARSON CORRELATION OF PERCEIVED EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT ACTIVITIES WITH PAST PARTICIPATION IN THE SAME ACTIVITIES BY ELEMENTARY TEACHERS (N=243)

	Past Participation	Significance
Workshops	0.283	<.001
University Coursework	0.092	.078
Conferences	0.349	<.001
Individual Activities	0.308	<.001
Professional Activities	0.267	<.001
Collegial Activities	0.254	<.001

6. Do those experienced elementary teachers who believe that being up-to-date in skills and knowledge related to teaching will lead to desired outcomes participate more in professional development activities?

Participants in this study were asked to rate the importance of forty-five outcomes that could result from being up-to-date in skills and knowledge related to teaching. In addition, participants were asked to judge whether each outcome would be available as a result of being up-to-date. Each participant's perceptions regarding the importance and availability of outcomes were correlated with that individual's past participation in each category of professional development activities.

Table 19 shows the positive correlation coefficients for teachers' perceptions regarding importance and availability of outcomes and past participation in updating activities. There were two professional development activities, University Coursework and

Professional Activities, for which teachers' perceptions of the importance and availability of outcomes were significantly correlated with past participation.

TABLE 19

PEARSON CORRELATION OF TEACHERS' PERCEPTIONS OF IMPORTANCE AND AVAILABILITY OF OUTCOMES WITH PAST PARTICIPATION IN PROFESSIONAL DEVELOPMENT ACTIVITIES

	Past Participation	Significance
Workshops	0.038	.278
University Coursework	0.174	.003
Conferences	0.027	.339
Individual Activities	0.034	.298
Professional Activities	0.178	.003
Collegial Activities	0.083	.098

7. Are the rewards that are the most important to teachers for remaining up-to-date in teaching methods extrinsic or intrinsic?

Participants were asked to rate the importance of forty-five outcomes that might occur as a result of updating skills and knowledge related to teaching. These outcomes were classified into extrinsic and intrinsic categories to test which category was the most desirable to teachers. The mean of the rating of all of the intrinsic outcomes was 4.27 on a five-point scale. The mean of the rating of all of the extrinsic items was 3.46 on a five-point scale. The *t* test revealed a *t* value of 29.64 for a significance of less than .001. The ANOVA comparisons according to age, experience, grade level, and size of school district follow.

Table 20 shows how experienced elementary teachers in three age categories--21-35 years, 36-45 years, and over 45 years--perceived the importance of intrinsic and extrinsic outcomes. The ANOVA results indicate that older teachers rated both intrinsic and extrinsic outcomes as significantly less important than younger teachers.

TABLE 20

ANOVA COMPARISONS OF PERCEIVED IMPORTANCE OF INTRINSIC AND EXTRINSIC OUTCOMES BY ELEMENTARY TEACHERS IN THREE AGE CATEGORIES

	Intrinsic	Extrinsic
21-35 (N=62)	4.319	3.896
36-45 (N=102)	4.316	3.786
Over 45 (N=78)	4.147	3.511
F Ratio	3.601	8.057
F Probability	0.029	<.001

Table 21 shows how experienced elementary teachers at three different levels of experience--up to 10, 11 to 20, and over 20--perceived the importance of extrinsic and intrinsic outcomes. ANOVA identified no significant differences in the way teachers perceived the importance of intrinsic outcomes. Teachers with more experience perceived extrinsic outcomes as significantly less important than less experienced teachers.

Table 22 shows how experienced elementary teachers who teach primary (K-3) grades and who teach upper (4-6) grades perceived the importance of intrinsic and extrinsic outcomes. Upper grade teachers rated both intrinsic and extrinsic outcomes as significantly less important than did primary teachers.

TABLE 21

ANOVA COMPARISONS OF PERCEIVED IMPORTANCE OF INTRINSIC AND EXTRINSIC OUTCOMES BY ELEMENTARY TEACHERS AT THREE LEVELS OF EXPERIENCE

	Intrinsic	Extrinsic
Up to 10 (N=70)	4.254	3.824
11-20 (N=102)	4.318	3.792
Over 20 (N=71)	4.190	3.539
F Ratio	1.626	4.897
F Probability	0.199	0.008

TABLE 22

ANOVA COMPARISONS OF PERCEIVED IMPORTANCE OF INTRINSIC AND EXTRINSIC OUTCOMES BY ELEMENTARY TEACHERS IN PRIMARY AND INTERMEDIATE GRADES

	Intrinsic	Extrinsic
Gr. K-3 (N=129)	4.337	3.802
Gr. 4-6 (N=103)	4.190	3.637
F Ratio	5.928	4.093
F Probability	0.016	0.044

Table 23 shows how experienced elementary teachers in four different sized school districts--0-500 students, 501-1000 students, 1001-3500, and over 3500 students--perceived the importance of intrinsic and extrinsic outcomes. ANOVA identified

no significant differences in how teachers from the four different sized school districts rated the importance of intrinsic and extrinsic outcomes.

TABLE 23

ANOVA COMPARISONS OF PERCEIVED IMPORTANCE OF INTRINSIC AND EXTRINSIC OUTCOMES BY ELEMENTARY TEACHERS IN VARIOUS SIZED SCHOOL DISTRICTS

	Intrinsic	Extrinsic
0-500 (N=51)	4.220	3.683
501-1000 (N=60)	4.246	3.622
1001-3500 (N=77)	4.269	3.839
Over 3500 (N=30)	4.306	3.715
F Ratio	0.273	1.498
F Probability	0.845	0.216

Teachers in this study rated intrinsic outcomes as significantly more important than extrinsic outcomes. ANOVA identified significant differences in the way teachers at different ages, experience levels, and grade levels perceived the importance of intrinsic and extrinsic outcomes.

8. Are there any differences in how experienced elementary teachers at the operational, developmental, transitional, or devocational levels perceive the importance of intrinsic and extrinsic outcomes?

Participants completed the *Career Awareness Index* to determine the career level at which they were functioning. Teachers who completed the survey were categorized by career level. Although there were four career levels possible depending on the score on the *Career Awareness Index*, the teachers responding to this survey fell into three levels:

transitional (low productivity), operational (moderate productivity), and developmental (exceptional productivity). None of the teachers in this study were at the devocational (lack of productivity) level. Although all but ten of the teachers in the study are in career levels of moderate to low productivity, this sample is comparable with the national norms.

Table 24 shows how experienced elementary teachers at three career levels--transitional, operational, and developmental--perceived the importance of intrinsic and extrinsic outcomes. ANOVA identified no significant differences in how teachers at the three levels perceived the importance of intrinsic and extrinsic outcomes.

TABLE 24

ANOVA COMPARISONS OF PERCEIVED IMPORTANCE OF INTRINSIC AND EXTRINSIC OUTCOMES BY ELEMENTARY TEACHERS AT THREE CAREER LEVELS

	Intrinsic	Extrinsic
Transitional (N=57)	4.216	3.732
Operational (N=176)	4.289	3.737
Developmental (N=10)	4.053	3.536
F Ratio	1.587	0.506
F Probability	0.207	0.604

The next four tables present an analysis designed to test the relationship of career level and other demographic variables. Career level and age, career level and experience, career level and grade level, and career level and size of school district are compared using Chi-square values.

Table 25 shows the Chi-square values for three career levels and three age groups of teachers. Chi-square identified no significant relationship between career level and age.

TABLE 25

CHI-SQUARE VALUES OF CAREER LEVEL AND AGE OF ELEMENTARY TEACHERS (N=243)

	21-35	36-45	Over 45
Transitional	25.8	27.5	16.7
Operational	71.0	67.6	79.5
Developmental	3.2	4.9	3.8

χ^2=3.525, df=4, significance=.474

Table 26 shows the Chi-square values for three career levels and three experience groups of teachers. Chi-square identified no significant relationship between career level and experience.

Table 27 shows the Chi-square values for three career levels and two grade levels. Chi-square identified no significant relationship between career level and grade level taught.

Table 28 shows the Chi-square values for three career levels and four sizes of school districts. Chi-square identified no significant relationship between career level and size of school distict.

TABLE 26

CHI-SQUARE VALUES OF CAREER LEVEL AND EXPERIENCE OF ELEMENTARY TEACHERS (N=243)

	Up to 10	11-20	Over 20
Transitional	24.3	25.5	19.7
Operational	68.6	73.5	74.6
Developmental	7.1	1.0	5.6

χ^2=5.225, df=4, significance=.265

TABLE 27

CHI-SQUARE VALUES OF CAREER LEVEL AND GRADE LEVEL OF ELEMENTARY TEACHERS (N=243)

	K-3	4-6
Transitional	24.8	23.3
Operational	71.3	71.8
Developmental	3.9	4.9

χ^2=2.222, df=4, significance=.695

TABLE 28

CHI-SQUARE VALUES OF CAREER LEVEL OF ELEMENTARY TEACHERS AND DISTRICT SIZE
(N=243)

	0-500	501-1000	1001-3500	Over 3500
Transitional	21.6	28.3	23.4	20.5
Operational	76.5	66.7	71.4	74.4
Developmental	2.0	5.0	5.2	5.1

χ^2=2.222, df=4, significance=.695

9. Regarding the Expectancy Theory of Motivation, is the full model, Expectancy multiplied by the sum of the products of Valence and Instrumentality of each item [$M=E\bullet\Sigma(V\bullet I)$], more predictive of participation in updating activities than its components? The components of the formula are Expectancy (E) and the sum of the products of Valence and Instrumentality of each item [$\Sigma(V\bullet I)$].

Expectancy refers to the belief that effort expended will result in some performance or knowledge level. To test the Expectancy portion of the formula, experienced elementary teachers were asked to rate the effectiveness of professional development activities in keeping them up-to-date in skills and knowledge related to teaching. The other component of the model is a combination of the Valence (attractiveness) rating of an outcome and the Instrumentality (availability) rating of the same outcome. To test the Valence and Instrumentality portion of the model, experienced elementary teachers were asked to rate the importance of outcomes and the likelihood that the same outcomes were available as a result of being up-to-date in skills and knowledge.

Participants were also asked to share how many times they had participated in professional development activities in the past and how many times they will participate in

the future. Pearson Correlation Coefficients were used to test how well the entire model correlated with past and future participation. The same statistical analysis was used to test how Expectancy as well as Valence and Instrumentality correlated with past and future participation.

Table 29 shows the correlation coefficients for the entire model and *past* participation in updating activities for all the outcomes and for intrinsic and extrinsic outcomes. In addition, table 29 shows the correlation coefficients for the Expectancy as well as the Valence and Instrumentality portion of the model and *past* participation in updating activities for all the outcomes and for intrinsic and extrinsic outcomes.

For *all* the outcomes, the complete model of the expectancy theory is significantly and positively correlated with *past* participation in all professional development activities. The Expectancy portion of the model is significantly correlated with past participation in all professional development activities except for University Coursework. The Valence and Instrumentality portion of the model is significantly correlated with past participation in University Coursework and in activities related to Professional Activities.

For the *intrinsic* outcomes, the complete model of the expectancy theory is significantly and positively correlated with past participation in all professional development activities. Since the Expectancy portion of the model is the same for each section, it is significantly correlated with past participation in all but University Coursework. The Valence and Instrumentality portion of the model is significantly correlated for past participation in University Coursework and in activities related to Professional Activities.

For the *extrinsic* outcomes, the complete model of the expectancy theory is significantly and positively correlated with past participation in all professional development activities. The Expectancy portion of the model is significantly correlated

TABLE 29

CORRELATIONS OF FULL MODEL OF EXPECTANCY THEORY AND ITS COMPONENTS TO PAST PARTICIPATION IN VARIOUS PROFESSIONAL DEVELOPMENT ACTIVITIES

	All			Intrinsic			Extrinsic		
	Full Model	Expectancy	Valence and Instrumentality	Full Model	Expectancy	Valence and Instrumentality	Full Model	Expectancy	Valence and Instrumentality
Workshops	.158*	.283**	0.038	.198*	.283**	0.025	.117*	.283**	0.052
University Coursework	.160*	0.092	.174*	.176*	0.092	.184*	.124*	0.092	.118*
Conferences	.286**	.349**	0.027	.293**	.349**	0.048	.262**	.349**	0.040
Individual Activities	.232**	.308**	0.034	.229**	.308**	0.027	.196*	.308**	0.008
Professional Activities	.281**	.267**	.178*	.304**	.267**	.198*	.270**	.267**	.180*
Collegial Activities	.215**	.254**	0.083	.223**	.254**	0.092	.198*	.254**	0.082

*significant at .05

**significant at .001

Full Model - Product of Expectancy, Valence, and Instrumentality

Expectancy - Relationship between effort and performance

Valence and Instrumentality - Product of the desirability of outcomes (Valence) and the relationship between performance and outcomes (Instrumentality)

with past participation in all updating activities except University Coursework. The Valence and Instrumentality portion of the model is significantly correlated with past participation in University Coursework and in activities related to Professional Activities.

Table 30 shows the correlation coefficients for the entire model and *future* participation in updating activities for all the outcomes and for intrinsic and extrinsic outcomes. In addition, table 30 shows the correlation coefficients for the Expectancy and the Valence and Instrumentality portions of the model and *future* participation in updating activities for all the outcomes and for intrinsic and extrinsic outcomes.

For *all* outcomes, the entire model is significantly and positively correlated with future participation in all updating activities. For all outcomes, Expectancy is significantly correlated with future participation in all updating activities. For all outcomes, Valence and Instrumentality is significantly correlated with future participation in all updating activities except for Conferences.

For the *intrinsic* outcomes, the entire model is significantly and positively correlated with future participation in updating activities. For intrinsic outcomes, the Expectancy portion of the model is significantly and positively correlated with future participation in all updating activities. For intrinsic outcomes, the Valence and Instrumentality portion of the model is significantly and positively correlated with future participation in Workshops, University Coursework, activities related to Professional Activities, and Collegial Activities.

For the *extrinsic* outcomes, the entire model is significantly and positively correlated with future participation in updating activities. For the extrinsic outcomes, the Expectancy portion of the model is significantly and positively correlated with future participation in all updating activities. For extrinsic outcomes, the Valence and Instrumentality portion of the model is significantly and positively correlated with future participation in all updating activities.

TABLE 30

CORRELATIONS OF FULL MODEL OF EXPECTANCY THEORY AND ITS COMPONENTS TO FUTURE PARTICIPATION IN VARIOUS PROFESSIONAL DEVELOPMENT ACTIVITIES

	All			Intrinsic			Extrinsic		
	Full Model	Expectancy	Valence and Instrumentality	Full Model	Expectancy	Valence and Instrumentality	Full Model	Expectancy	Valence and Instrumentality
Workshops	.498**	.609**	.130*	.489**	.609**	.156*	.463**	.609**	.133*
University Coursework	.550**	.569**	.286**	.515**	.569**	.227**	.516**	.569**	.283**
Conferences	.612**	.728**	0.094	.591**	.728**	0.091	.578**	.728**	.133*
Individual Activities	.510**	.636**	.137*	.474**	.636**	0.074	.486**	.636**	.154*
Professional Activities	.636**	.677**	.339**	.629**	.677**	.292**	.629**	.677**	.382**
Collegial Activities	.556**	.620**	.255**	.547**	.620**	.227**	.527**	.620**	.261**

*significant at .05

**significant at .001

Full Model - Product of Expectancy, Valence, and Instrumentality

Expectancy - Relationship between effort and performance

Valence and Instrumentality - Product of the desirability of outcomes (Valence) and the relationship between performance and outcomes (Instrumentality)

Table 31 shows the positive correlations of the full model of the Expectancy Theory of Motivation and its components with the total past and future anticipated participation in updating activities of experienced elementary teachers. Expectancy is the perceived effectiveness of each professional development activity for the updating of skills and knowledge. Valence and Instrumentality is the product of the desirability of outcomes (Valence) and the relationship between performance, in this case updating, and outcomes (Instrumentality). The entire expectancy theory equation is a product of Expectancy, Valence, and Instrumentality. All correlations in table 31 are significant.

TABLE 31

CORRELATIONS OF FULL MODEL OF EXPECTANCY THEORY AND ITS PARTS TO PAST AND FUTURE PARTICIPATION IN UPDATING

	Full Model	Expectancy	Valence and Instrumentality
Total past participation	.185*	.177*	.119*
Total future participation	.597**	.683**	.307**

*significant at .05

**significant at .001

It is not conclusive, based on the analysis of the data from this study, whether the full model of the expectancy theory or its parts are more predictive of effort. Correlations were significant for the full model and past and future updating, Expectancy and past and future updating, and Valance and Instrumentality and past and future updating. However, correlations were not significant for each category of activities for the full model, Expectancy, or for Valence and Instrumentality.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter five presents a summary of the study and a discussion of the findings. The chapter also presents the conclusions of the study and recommendations for further study.

Summary of the Study

The purpose of this study was to examine the perceptions of experienced elementary teachers regarding professional development activities and to examine the perceptions of the same population regarding the outcomes of being professionally up-to-date. The population that was surveyed were full-time North Dakota elementary teachers in grades K-6 with three or more years of experience.

In order to gather the data necessary to conduct the study, each subject completed a survey plus an instrument to identify career level. The Valence, Instrumentality, and Expectancy (VIE) Survey was developed specifically for this study, and the *Career Awareness Index* (CAI) (DeMoulin 1990) was used to determine career level. A total of 243 usable surveys were collected.

The CAI was scored by Dr. Donald DeMoulin, the developer of the instrument. The VIE Survey was scored and analyzed with the help of the Bureau of Educational Services and Applied Research at the University of North Dakota. Through the use of the SPSS-X computer program, the data were analyzed using *t* tests, Analysis of Variance (ANOVA), Scheffé Multiple Contrast, Pearson Correlation Coefficients, and Chi-square.

Discussion of the Findings and Conclusions

In this section, the findings and conclusions will be presented and discussed. First, a summary of the findings and conclusions will be summarized as a list. Secondly, each research question will be discussed incorporating the findings of this study related to the question, related research, and related interpretations by the investigator.

Based on the findings of this study, the following summary is presented:

1. Teachers prefer updating activities in which there is expert knowledge being presented, such as university coursework, workshops, and conferences, to those less formal activities such as interacting with colleagues, individual activities, or professional activities.

2. Teachers over forty-five years old and teachers with over twenty years of experience believe university coursework or professional activities to be less effective for updating than do younger or less experienced teachers.

3. Teachers at the transitional career level believe university coursework, individual activities, or professional activities to be less effective for updating than do teachers at more growth-oriented career levels.

4. Many of the experienced teachers in North Dakota, as indicated by the CAI, are in career levels of low to moderate productivity. However, this is consistent with national norms for teachers who have taken the CAI.

5. Teachers over forty-five years old, teachers with over twenty years of experience, and teachers at the transitional career level generally perceived professional development activities to be not as effective for updating as those teachers who were younger, had less experience, or were at growth-oriented career levels.

6. Intermediate teachers perceived individual professional development activities as significantly less effective than primary teachers.

7. Psychic rewards are perceived by teachers to be significantly more desirable and available than other rewards.

8. Teachers over forty-five years old and teachers with over twenty years of experience are less likely to be motivated by career status or expanded responsibility than younger or less experienced teachers.

9. Generally, teachers over forty-five years old, teachers with over twenty years of experience, and teachers at the transitional career level value outcomes (incentives or rewards) or believe they are available as a result of being up-to-date less than do younger, less experienced, or more growth-oriented teachers.

10. Intermediate teachers value working conditions, monetary rewards, and non-monetary recognition less and perceive them as less available as a result of updating than primary teachers.

11. Teachers who perceive that certain professional development activities are effective have participated more in those activities in the past and say that they will participate more in those activities in the future.

12. Teachers who believe that valued outcomes are available as a result of being up-to-date have participated more in updating activities in the past and say that they will participate more in updating activities in the future.

13. Teachers, in this sample, perceived intrinsic rewards as significantly more desirable than extrinsic rewards.

14. Teachers who were over forty-five years old and had over twenty years of experience perceived extrinsic rewards to be significantly less important than did younger or less experienced teachers.

15. Enrollment of school district had no significant effect on teachers' perceptions of effectiveness of professional development activities, importance of outcomes, or availability of outcomes.

16. Regarding the expectancy theory equation, Expectancy (believing that an activity is worthwhile) is predictive of past and future participation in updating activities.

17. Regarding the expectancy theory equation, the Valence and Instrumentality part of the equation is not predictive of past participation in specific updating activities, although it is predictive of future participation.

18. The equation of the full model of the expectancy theory is predictive of past and future participation in updating activities.

19. Career level, as measured by the CAI, is not significantly correlated with age, experience, grade level, or enrollment of school district.

The analysis of the data resulted in the following findings for the nine research questions. In this section, the research question is stated, findings which pertain to that question are presented, and discussion follows.

Research question 1. In what ways do experienced elementary teachers perceive that various professional development activities contribute to remaining up-to-date in skills and knowledge related to teaching?

Teachers were asked to judge the effectiveness of thirty-one specific professional development activities which were then grouped into six categories to facilitate analysis: Workshops, University Coursework, Conferences, Individual Activities, Professional Activities, and Collegial Activites. The rankings of the thirty-one specific activities and the categories to which they were assigned are shown in appendix E. Assuming that the reader is familiar with Workshops, University Coursework, and Conferences, only Individual Activities, Professional Activities, and Collegial Activities will be explained. Individual Activities are activities undertaken by the individual to update skills and knowledge. Individual Activities would include such activities as reading journals or viewing instructional videotapes. Professional Activities are the work that teachers do as a result of being a professional and that may contribute to the teacher

becoming more up-to-date. Professional Activities would include such activities as curriculum development or serving as a member of a task force. Collegial Activities are those updating activities in which teachers help other teachers or are helped by colleagues to become more up-to-date. Examples of Collegial Activities would include such activities as coaching a colleague in a new technique or discussing educational issues with a colleague.

According to the teachers surveyed, the categories of activities ranked from most effective to least effective were University Coursework, Workshops, Conferences, Collegial Activities, Individual Activities, and Professional Activities. University Coursework, Workshops, and Conferences were perceived as significantly more effective than the others.

One might conclude from this finding that teachers, as a group, believe that settings in which expert knowledge is presented are more effective in keeping them up-to-date than Collegial, Individual, or Professional Activities. It is interesting to note that these fairly traditional updating activities are preferred by the experienced teachers in this study. Is this because teachers consider this the most efficient way to gain new knowledge and skills? Perhaps these are the methods of updating with which they have the most experience. In North Dakota, university courses are generally popular because teachers are required to gain eight credits every five years for recertification. Additionally, in most North Dakota school districts, teachers advance on the salary schedule for gaining university credits.

The survey respondents were divided into three age groups: 21-35, 36-45, and over 45. Older teachers rated Professional Activities and University Coursework to be significantly less effective than younger teachers.

Teachers were also divided by years of experience: up to 10 years, 11-20 years, and over 20 years. More experienced teachers rated Professional Activities and University Coursework to be significantly less effective than teachers with less experience.

It is interesting to note that teachers over forty-five years old and those with over twenty years of experience significantly differ from their younger and less experienced colleagues regarding the effectiveness of University Coursework and Professional Activities. One of the reasons that older and more experienced teachers rate the category of University Coursework so low might be that within that category are two specific activities: (1) taking a college or university course and (2) pursuing an advanced degree. It is likely that older and more experienced teachers would continue taking college courses but would be substantially less interested in pursuing an advanced degree. In regards to Professional Activities, it is conceivable that older and more experienced teachers have had many opportunities to participate in activities like curriculum development, professional association activities, and school visitation committees. In addition, career development theorists like Krupp (1989) and Levine (1989) would suggest that, at midcareer, adults have many personal concerns outside of work that occupy their attention.

That there would be significant differences in the way teachers of different ages or years of experience would perceive the effectiveness of professional development activities would be consistent with the growing body of research on career development of teachers. That body of research suggests that teachers at different career levels or stages have different professional development needs (Burden and Wallace 1983; DeMoulin and Guyton 1989; Krupp 1989; Levine 1989; McDonnell, Christensen, and Price 1989).

Participants in the study were divided by primary (K-3) teachers and intermediate (4-6) teachers. Teachers in the intermediate grades perceived the category Individual Activities to be significantly less effective than did primary teachers.

The data were also analyzed according to the size of the school district. Four sizes of school districts were used: 0-500 students, 501-1000 students, 1001-3500 students, and over 3500 students. No significant differences were found in how teachers in these various sized school districts perceived the effectiveness of updating activities.

Research question 2. What are the most desired outcomes of experienced elementary teachers for being up-to-date in skills and knowledge related to teaching?

In this study, an assumption was made that teachers were not motivated to work for negative outcomes so only positive outcomes were used. Outcomes, for the purposes of this study, could also be characterized as incentives or rewards. Teachers were asked to rate the importance of forty-five outcomes. To facilitate analysis, these forty-five outcomes were arranged into six categories: Monetary Rewards, Non-monetary Recognition, Working Conditions, Expanded Responsibilities, Career Status, and Psychic Rewards. Appendix F shows how each of the forty-five outcomes was rated and to which category it was assigned. Monetary Rewards are obviously those to which a monetary value is attached. Non-monetary Recognition rewards involve recognition but not by monetary means. Working Conditions rewards or incentives make it easier and more pleasant for a teacher to work. Examples of Working Conditions outcomes would include such activities as being assigned to work with a friendly faculty or securing adequate supplies and equipment. Career Status outcomes are those that elevate the status of the person or the position. An example of a Career Status outcome might include being assigned to teach in a school with a good academic reputation. Expanded Responsibilities are rewards that come from increased responsibility such as serving as being chosen to serve as a mentor teacher or being offered a promotion. Psychic Rewards are those intrinsic rewards that have to do with a teacher's own perception of increased effectiveness. An example of Psychic Rewards includes feeling one is meeting the needs of the students more effectively, thus satisfying a desire for excellence.

The elementary teachers surveyed rated the categories in the following order of importance: Psychic Rewards, Working Conditions, Monetary Rewards, Non-monetary Recognition, Career Status, and Expanded Responsibilities. Psychic Rewards was rated significantly higher than any of the remaining categories. Working Conditions, Monetary Rewards, and Non-monetary Recognition were rated significantly higher than Career Status or Expanded Responsibilities.

The fact that Career Status and Expanded Responsibilities were perceived as being less desirable than outcomes such as Working Conditions, Monetary Rewards, and Non-monetary Recognition is somewhat inconsistent with Herzberg's well-known theory (Herzberg, Mausner, and Snyderman 1959). The theory put forth in this book was that, in the workplace, there are hygiene factors, such as working conditions, salary, and interpersonal relations, without which there is dissatisfaction. On the other hand, achievement and personal growth are described as motivators because these items are what energizes effort. Would not Career Status and Expanded Responsibilities be considered motivators by Herzberg?

Other research on incentives and rewards would support the findings of this study. Psychic Rewards is another name for intrinsic rewards that are personal. Mitchell, Ortiz, and Mitchell (1987) characterize intrinsic rewards as "personalized psychic experiences" (p. 187) that come from within the individual and cannot be physically manipulated by others. In addition, intrinsic rewards are immediately connected to the activity to which they are associated. In other words, their dispersal is immediate and direct, not dependent upon the actions of others or delayed until some subsequent experience is encountered. Two examples of intrinsic rewards would be a feeling of accomplishment or a perception that student learning was increased.

The importance of outcomes was also analyzed according to the variables age, experience, grade level, size of school district, and career level. Older teachers rated

Monetary Rewards, Career Status, Expanded Responsibilities, and Psychic Rewards significantly less important than did younger teachers. Career Status and Expanded Responsibilities were rated significantly less important by veteran teachers than less experienced teachers.

It might be well to discuss here the possible effect that the availability of a reward has on a person's perception of the value of that reward. McDonnell, Christensen, and Price (1989), in a similar study, found that teachers judged incentives to be more appropriate when they were available. It is possible that older and more experienced teachers have discovered through experience that some, perhaps most, of the outcomes in this study are not readily available.

In this study, teachers' perceptions of the importance of outcomes, resulting from being up-to-date, varied with the stage of career. This is consistent with a related study. McDonnell, Christensen, and Price (1989) found that teachers chose different incentives depending on the career stage of the teacher.

Intermediate teachers judged Monetary Rewards, Non-monetary Recognition, and Working Conditions as significantly less important than did primary grade teachers. There was only one difference in how teachers in different sized school districts perceived the importance of outcomes. Teachers in the school districts with enrollments between 1001 and 3500 perceived Monetary Rewards as being significantly more important than did teachers from other school districts. The reason for this may have been that school districts in that enrollment category were dissatisfied with their compensation in comparison to other school districts.

Research question 3. What are the perceptions of experienced elementary teachers regarding how being up-to-date in skills and knowledge related to teaching will help them attain desired outcomes?

As a part of the outcomes portion of this study, teachers were also asked to rate the likelihood of obtaining desired outcomes. For each outcome, teachers were asked to rate the importance of each of forty-five outcomes as well as to judge the chances of obtaining the outcome as a result of being up-to-date in skills and knowledge related to teaching. The forty-five outcomes, their rank as far as importance and availability, and the category are included in appendix F. The outcome categories ranked in the order of perceived availability were Psychic Rewards, Non-monetary Recognition, Expanded Responsibilities, Career Status, Monetary Rewards, and Working Conditions. The outcome category, Psychic Rewards, was perceived to be significantly more available than any of the other outcome categories.

In a related study, Randklev (1984) found that rewards related to recognition were the most desirable and available. McDonnell, Christensen, and Price (1989), in their study of incentives for teaching, found that teachers rated incentives higher when they knew the incentives were available. It is likely that one of the reasons that Psychic Rewards were perceived as being the most likely to be obtained as a result of being up-to-date is because these rewards are not dependent on an external source. Psychic or intrinsic rewards are controlled by the feelings of the individual.

The outcomes portion of the survey was also analyzed according to age, experience, grade level, size of school district, and the career level. Older teachers perceived Career Status, Psychic Rewards, and Expanded Responsibilities as significantly less likely to be obtained as a result of updating than did younger teachers. The most experienced teachers perceived Career Status and Expanded Responsibilities as significantly less likely to be available than did teachers with less experience. That teachers at different ages, levels of experience, and career levels would vary in their perceptions of the availability of outcomes is substantiated by other researchers (McDonnell, Christensen, and Price 1989; Randklev 1984).

Intermediate grade teachers believed Monetary Rewards to be significantly less available as a reward for being up-to-date than did primary grade teachers. There were no significant differences in the perceptions of the availability of outcomes by teachers in school districts of different sizes.

Research question 4. Are there any differences in the way experienced teachers at the operational, developmental, transitional, and devocational career levels perceive how various professional development activities contribute to being up-to-date and how they perceive being up-to-date helps them attain desired outcomes?

One of the purposes of this study was to determine if career level had any effect on perceptions of updating activities by teachers. The CAI, or *Career Awareness Index*, was used to determine the career level of the teachers who completed the survey. Depending on their responses on the CAI, teachers fit into four levels of productivity. The levels in order from exceptional to lowest productivity are Developmental, Operational, Transitional, and Devocational. Out of 242 respondents, 57 were identified as Transitional (low productivity), 176 were identified as Operational (moderate productivity), and 10 were identified as Developmental (exceptional productivity). There were no teachers identified as Devocational. Teachers at the Devocational career level are experiencing a high degree of stress and are in danger of burnout and total loss of productivity.

Teachers at the Transitional level rated University Coursework, Individual Activities, Workshops, and Professional Activities significantly lower than did teachers at the other two career levels. Teachers at the Transitional level (lowest productivity) perceived the outcomes of Working Conditions and Psychic Rewards as significantly less likely to be available than did teachers at the Developmental level. Teachers at the Transitional level perceived the outcome of Non-monetary Recognition as significantly less likely to be obtained than did teachers at any other level.

This concurs with the study of McDonnell, Christensen, and Price (1989) in which they found that teachers in the growth stages valued incentives more. In their study, more incentives were indicated as appropriate by teachers in growth stages, given their availability, than at other stages.

Research question 5. Do those experienced elementary teachers who believe that participation in specific professional development activities results in being more up-to-date participate more in those activities?

The theoretical foundation of this study is the Expectancy Theory of Motivation. One of the purposes of this study was to test this theory as it relates to updating behavior of experienced teachers. The theory states that motivation towards a course of action is influenced by Expectancy (the belief that effort will result in some performance level or knowledge state) times the sum of the combination of Valence (desirability) of an outcome and Instrumentality (availability) of the same outcome. The study was designed to test the predictivity of the whole expectancy formula as well as the individual elements of the formula.

Within-subject correlations were done using the perceived effectiveness of the professional development activities and the past and future participation in those activities. This analysis was to test the Expectancy portion of the theory which is the belief that effort will result in some knowledge level. The perceived effectiveness of activities had positive and significant correlations with future participation in that activity. Correlations with past participation were positive for all updating activities and significant for all but University Coursework. To summarize, teachers, in this study, who believed a professional development activity was effective had participated in that activity in the past and intended to participate in the future.

Research question 6. Do those experienced elementary teachers who believe that being up-to-date in skills and knowledge related to teaching will lead to desired outcomes participate more in professional development activities?

Within-subject correlations were performed to test the relationship of the total past and future participation and the perceived importance and availability of outcomes. This analysis tested the Valence and Instrumentality element of the expectancy theory. Perceived importance and availability of outcomes had a positive and significant correlation to total past and future participation in updating activities. Correlations were higher for future participation than for past participation. To summarize, the more a teacher believed that valued outcomes (rewards or incentives) were available as a result of updating, the more that person had participated in professional development activities. This same relationship was even more pronounced for future participation in professional development activities.

These results are consistent with a study done by Farr et al. (1984) that dealt with engineers. They found significant correlations between beliefs about the likelihood of obtaining certain outcomes and the number of technical courses taken during the last year.

It is interesting to note that correlations were higher for future participation in all of the analyses. The reason for that may be that the survey was phrased differently for future and past participation. Participants were asked to indicate how many times they had participated in an updating activity in the past few years. On the other hand, participants were asked to judge, on a scale from very unlikely to very likely, if they would participate in an updating activity in the future. Chances are that the teachers in the sample were quite optimistic about their future participation and may never have participated in some of the activities.

Research question 7. Are the rewards that are the most important to teachers for remaining up-to-date in teaching methods extrinsic or intrinsic?

Mitchell, Ortiz, and Mitchell (1987) distinguish intrinsic from extrinsic rewards in two ways. First, intrinsic rewards are "personalized psychic experiences" (p. 187) that come from within the individual and cannot be physically manipulated by others. Second, intrinsic rewards are immediately connected to the activity to which they are associated. In other words, their dispersal is immediate and direct, not dependent upon the actions of others or delayed until some subsequent experience is encountered. Extrinsic rewards have the opposite characteristics. They are objective or material in character and therefore can be manipulated by others. Their dispersal is typically under the control of someone other than the person receiving them and dispersion is often not adequately linked to the activities with which they are supposedly associated.

In this study, teachers perceived intrinsic rewards to be significantly more desirable than extrinsic outcomes. This is no surprise. The research demonstrating that teachers judge intrinsic rewards to be more desirable is among the most robust findings in research on incentives and teachers. Mitchell, Ortiz, and Mitchell (1987) summarized this research, "All of the available evidence supports . . . [that] educators generally find intrinsic rewards more meaningful and attractive than extrinsic ones" (p. 188). More than one scholar has made the observation that one reason that teachers may prefer intrinsic rewards is because extrinsic rewards, such as monetary compensation, have not been readily available (Feiman-Nemser and Floden 1986; Lortie 1975; Mitchell, Ortiz, and Mitchell 1987).

Even though it is widely accepted that teachers will generally choose intrinsic rewards as more desirable than extrinsic rewards, only one intrinsic reward has been considered more attractive than others. In several studies, teachers have recognized students to be an important source of incentive (Feiman-Nemser and Floden 1986; Lortie 1975; Wright 1985). In this study, the single, specific outcome (in the Psychic Rewards

category) that was rated most important was "meeting the needs of students more effectively."

Teachers at different ages and different levels of experience perceived the value of intrinsic and extrinsic rewards differently. Older teachers rated both intrinsic and extrinsic rewards significantly less important than did younger teachers. Teachers in different experience categories did not differ significantly in how they perceived the importance of intrinsic outcomes. The most experienced teachers judged extrinsic outcomes as significantly less important than did less experienced teachers. Again, these findings are consistent with the findings of other studies that have established that teachers in various stages of their careers have differing perceptions of the desirability of outcomes (McDonnell, Christensen, and Price 1989).

Research question 8. Are there any differences in how experienced elementary teachers at the operational, developmental, transitional, or devocational levels perceive the importance of intrinsic and extrinsic outcomes?

Teachers at the Transitional, Operational, and Developmental career levels did not rate either intrinsic or extrinsic outcomes significantly differently. Earlier in this chapter it was noted that none of the teachers who responded to the survey were at the Devocational career level.

As has been stated several times previously in this section, the fact that teachers at different ages, levels of experience, and levels of engagement in career would rate the importance of rewards and incentives differently is not surprising. Research on career stages and levels supports this finding. It is somewhat surprising that teachers at the Transitional, Operational, and Developmental levels did not rate either intrinsic or extrinsic outcomes significantly differently. The reason for this may be that, in this study, age and experience did not correlate significantly with career level. The implication is that teachers of various ages and years of experience are in each career level.

Research question 9. Regarding the Expectancy Theory of Motivation, is the full model, Expectancy multiplied by the sum of the products of Valence and Instrumentality of each item [$M=E\cdot\Sigma(V\cdot I)$], more predictive of participation in updating activities than its components? The components of the formula are Expectancy (E) and the sum of the products of Valence and Instrumentality of each item [$\Sigma(V\cdot I)$].

The promise of an attractive incentive will not necessarily motivate a person to put forth effort. According to Mitchell, Ortiz, and Mitchell (1987), "incentives are destroyed if we cannot concretely imagine ourselves performing the activities needed for success" (p. 17). Further, a person must judge that effort expended will result in some performance level or knowledge state.

The Expectancy Theory of Motivation has the potential of explaining the wide range of reasons teachers may or may not engage in updating activities. Expectancy theory attempts to explain the process individuals go through in making a decision to expend effort or not. According to this theory, there are three elements that have to be in place for an individual to expend effort. The first element, *expectancy*, refers to the belief that effort expended will result in some performance level or knowledge state. The second element, *instrumentality*, refers to the belief that attaining a certain performance level or knowledge state will affect rewards or outcomes. The third element, outcome *valence*, refers to the attractiveness of some reward or outcome. The usefulness of expectancy theory lies in the fact that it recognizes that individuals may vary widely in their reasons for choosing or not choosing to expend effort.

In this study, the model was tested in several ways. First, the whole model or the product of Expectancy, Valence, and Instrumentality was correlated with the total past and future participation in updating activities. Correlations were higher for the whole model for past participation and higher for Expectancy for future participation. The model was also tested using all the outcomes, with only intrinsic outcomes, and then with only

extrinsic outcomes. In that analysis, correlations were performed by categories of professional development activities. Results in this analysis showed the Expectancy portion as having the highest correlations with past and future participation. Results in both analyses seemed to indicate that Valence and Instrumentality had the weakest correlations. Nevertheless, most of the correlations in both analyses were significant. In other words, the entire model as well as its separate components was found to reliably predict updating behavior in experienced elementary teachers.

Implications

Due to the findings and conclusions of this study, the following implications can be reported:

1. University Coursework, Conferences, and Workshops are preferred as professional development activities by teachers.

2. As teachers approach midcareer (forty-five years of age and twenty years of experience) they will be less motivated by professional development activities.

3. As teachers approach midcareer (forty-five years of age and twenty years of experience) they will value incentives less and perceive valued incentives as less likely to be available.

4. Teachers in career levels of low productivity perceive professional development activities to be less effective.

5. Teachers in career levels of low productivity value incentives less and perceive valued incentives as less likely to be available.

6. A relatively low percentage of teachers are at the developmental career level (the level of highest productivity).

7. Teachers will participate in activities they believe are effective for bringing them up-to-date in skills and knowledge.

8. Teachers vary in what they prefer for professional development activities. They vary by age, experience level, career level, and grade level.

9. Intrinsic rewards, particularly those that involve enhancing student learning, are very important to teachers and need to be included when making incentives available for updating.

10. Teachers vary by age, experience level, career level, and grade level in what they view as important incentives and rewards and whether they are available as a result of being up-to-date.

11. The expectancy theory is a useful motivational theory for understanding the updating behavior of teachers, considering that perceptions differ widely because of age, experience, career level, and grade level taught.

12. The career level of a teacher, as measured by the CAI, cannot be predicted by age, years of experience, grade level taught, or size of school district.

Limitations

The following limitations apply to the findings of this study:

1. The VIE Survey and *Career Awareness Index* were administered in the spring, when many teachers are fatigued after a year of teaching. It may be that if the *Career Awareness Index* had been administered earlier in the school year, career levels would be different.

2. None of the teachers in the sample were in the devocational career level. Therefore, there is no comparison for what would be characterized as the lowest level of productivity.

3. In the VIE Survey, statements regarding past and future participation in updating activities were constructed differently. Participants were asked to report the number of instances of past participation in specific updating activities. They were asked

to project their future participation in specific updating activities as likely or unlikely. Therefore, comparisons of past and future updating would not be valid.

Recommendations for Action

1. The findings of this study illustrated a need for the professional development and renewal of experienced teachers. More than 24 percent of the experienced teachers in this sample were at the transitional career level, characterized by low productivity and declining effectiveness. More than 72 percent of the experienced teachers in this sample were at the operational level, characterized by moderate productivity and low personal assessments of their ability as teachers. Only 4 percent were at the developmental career level, characterized by high productivity and self-motivation. The teachers in this study were generally consistent with national norms.

The fact that so many teachers are at the operational level or declining in effectiveness at the transitional level indicates a significant investment in activities to move teachers from lower levels of productivity to higher levels in order to bring quality education to children. One of the more simple ways this may be done is to improve teachers' working conditions, thus making teaching more rewarding (e.g., more preparation time or smaller class sizes). However, this investigator believes that the greatest need is the support for teachers to acquire the skills and knowledge to do their jobs more effectively (e.g., training to teach children with disabilities or training to use technology for management purposes).

2. Persons and agencies responsible for staff development need to promote professional updating activities that teachers perceive as effective. The research findings reported in this study clearly showed that teachers in this sample participated in and indicated a willingness to participate in professional development activities that they regard as effective. Further, teachers indicated their preference for certain types of updating

activities. The teachers in this sample preferred those updating activities in which expert knowledge was presented, such as workshops, university coursework, and conferences.

3. Persons and agencies responsible for staff development need to plan effective professional development activities for teachers who are in many different career stages and levels. The findings of this study support other research indicating that teachers of different ages, years of experience, and levels of career development may need or desire different activities to update skills and knowledge. Staff developers need to gain an awareness of the different stages and levels as well as the type of activity considered effective at these levels.

4. Incentives and rewards for staying up-to-date in skills and knowledge must include those of an intrinsic or internally controlled nature. This study demonstrated that intrinsic rewards are regarded as most desirable by teachers. This may have been because such rewards were controlled by the teachers themselves. From among these intrinsic rewards, only psychic rewards were perceived to be both desirable and available as a result of being up-to-date. Teachers will not willingly participate in professional development activities that hold no promise of assisting them to achieve intrinsic rewards such as "meeting the needs of students more effectively" or "becoming a more confident teacher." Persons and agencies responsible for staff development need to understand the power of psychic rewards and use them as a tool for encouraging teachers to update their skills and knowledge.

5. Teachers need to be aware of career development research and the implications of this research for their own careers. School districts should become much more proactive in assisting teachers with career development. Efforts by the school district might include career planning to anticipate difficult career stages, renewal opportunities specifically designed for certain career stages, or teaching assignments that take into

account career stages. School districts should make the *Career Awareness Index* available for teachers who want to identify their career level.

6. Teachers at midcareer or late career pose a special challenge to staff developers. Teachers in this study generally regarded all professional development activities as less effective as they got older, gained more experience, or were in a career level of low productivity. The implication of this finding is that staff developers may find the teachers who most need updating are those who are least motivated to participate in updating activities. For that reason, it is especially desirable that care be taken to tailor updating activities according to age, experience, and career level.

7. The findings of this study seem to indicate that the most successful professional development activity is a university course, a workshop, or a conference. In addition, the teacher must perceive that the outcome of the activity will help him or her to meet the needs of students better or to become a more effective teacher. In order to be successful in planning and carrying out professional development activities, staff developers need to make university courses, workshops, and conferences their core activities. They need to make sure that teachers perceive that the training will assist them to become more effective teachers.

8. The Expectancy Theory of Motivation should be taught as routinely as Maslow's Theory of Motivation in educational administration graduate schools. The expectancy theory is one theory that takes into account individual differences. It recognizes that individuals differ in their perceptions regarding rewards and incentives and if they are available. In addition, individuals differ in their perceptions regarding if effort will result in some level of performance. Persons, such as principals, responsible for motivating teachers to engage in professional development activities need a comprehensive understanding of this theory of motivation.

Recommendations for Further Study

1. The differences in the perceptions of teachers at different grade levels should be further investigated. The findings of this study indicate that teachers at higher grade levels value incentives less and perceive valued incentives as less likely to be available. In addition, teachers at higher grade levels perceived professional development activities as less effective for updating. Researchers should study the factors, from grade to grade, that might have an impact on the perceptions of teachers.

2. Teachers at career levels of low productivity need to be further investigated. Practitioners need to know if there are interventions that may move a teacher from a level of low productivity to a level of high productivity.

3. The Valence, Instrumentality, and Expectancy (VIE) Survey should be used to test if certain outcomes are tied to certain professional development activities. The survey should be administered with many different combinations to test the relationship between specific updating activities and specific outcomes.

4. Much more investigation needs to be done attempting to link specific professional development activities to appropriate career stages and levels. With the growing body of research supporting the notion that teachers pass through career stages and may be at a variety of levels, the next step is to isolate specific updating activities for individuals at various points in their career development.

5. The effects of the time of year on perceived career level should be investigated. The CAI should be administered to a group of teachers at different times of the school year to see if the time of the school year influences how teachers view their productivity.

6. This study should be replicated with other populations such as minority teachers, teachers in other parts of this country, teachers in other countries, teachers in private schools, and teachers in secondary schools.

APPENDICES

APPENDIX A

PRINCIPAL LETTER

March 27, 1992

Dear Principal:

I am conducting research for my dissertation about how and why teachers update their skills and knowledge related to teaching. The superintendent of your school district has given me permission to ask for your assistance in gathering the data. I need your help in identifying kindergarten through sixth-grade classroom teachers with at least three years of experience to participate in the study. I really need as many of the faculty as possible to complete all the instruments! Those who agree to participate in the study will complete three instruments: the Career Awareness Index; the Valence, Instrumentality, and Expectancy Survey; and a one-page Demographic Survey.

One way to proceed is to inform the faculty of my request at a staff meeting, find out who will participate, and then schedule a time shortly after the material arrives for all the teachers to complete the instruments. Copies of the instruments are enclosed. **Please permit the teacher to look at the instruments I have enclosed with this letter.** Based on tests conducted here, it will take your teachers thirty minutes or less to complete the instruments. The teachers are then to seal the completed instruments in a self-addressed, stamped envelope and mail it.

You and the teachers have my assurance that the information provided will be treated with strict confidentiality. Neither the teachers nor the school will be identified. The information from this study will assist school administrators and boards to make higher quality decisions about which professional development activities are most valuable to teachers and to provide outcomes and rewards that teachers find most desirable.

I will call you in approximately a week after you receive this letter to find out the correct number of surveys to send for your staff. Thank you for your assistance in this effort.

Sincerely,

Paul K. Johnson
Graduate Student

_____

Approved by Advisor,
Donald K. Lemon

APPENDIX B

TEACHER LETTER

Dear Participant,

I am conducting research for my dissertation about how and why teachers update their skills and knowledge related to teaching. I am asking you and other experienced elementary teachers in North Dakota to complete three instruments: the Career Awareness Index; the Valence, Instrumentality, and Expectancy Survey; and a one-page Demographic Survey. In tests conducted here, it took about 30 minutes or less to complete the three instruments.

You, as an experienced classroom teacher, have participated in professional development activities and certainly have found some to be more useful than others. In addition, you have some opinions about what outcomes and rewards should be provided to teachers as a result of being professionally up-to-date. I need to know your thinking on these matters.

You have my assurance that the information you provide will be treated with strict confidentiality. Neither you nor your school will be identified. However, after you have looked over the questionnaires, if you feel uncomfortable with providing the information required simply place the blank questionnaire in the envelope and mail it. The information from this study will assist school administrators, boards, and staff development committees to make higher quality decisions about which professional development activities are most useful to teachers and to provide outcomes and rewards that teachers find most desirable.

The questionnaires each have a set of directions. Please read the directions carefully and then respond to **ALL** the items. It is important to respond to all the items. Return the questionnaires in the enclosed stamped, self-addressed envelope. I need to have all the questionnaires returned by April 10, 1992.

If you have any questions regarding this study, please feel free to call me at the University of North Dakota (701) 777-4255 or at home (701) 772-7665. Thank you very much for your cooperation and participation!

Sincerely,

Paul K. Johnson
Graduate Student

_____

Approved by Advisor,
Donald K. Lemon

APPENDIX C

VALENCE, INSTRUMENTALITY, AND EXPECTANCY SURVEY

VIE Survey

Part I: PROFESSIONAL DEVELOPMENT ACTIVITIES

Please circle one number in each category

Professional Development Activities	Participating in this activity will help me stay up-to-date in skills and knowledge related to teaching. 1 - very unlikely 2 3 4 5 - very likely	I plan on participating in this activity in the next five years. 1 - very unlikely 2 3 4 5 - very likely	The number of times I have participated in this activity in the last two years.
1. Attending local professional association meetings	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
2. Serving in leadership roles in professional associations	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
3. Attending a professional association convention (variety of topics and activities)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
4. Attending a professional conference (focused one to three day event)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
5. Attending a building-level workshop (topic determined by building need)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
6. Attending a district-level workshop (topic determined by district need)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
7. Attending a multi-district workshop (variety of topics and sessions)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
8. Making a presentation at a workshop, convention, or conference	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
9. Observing other teachers teaching	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
10. Observing a demonstration lesson	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
11. Being coached by a supervisor or colleague	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
12. Serving on a teacher assistance team	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
13. Mentoring a less experienced teacher	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
14. Supervising a student teacher	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
15. Discussing educational issues with educators in my school	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
16. Discussing educational issues with educators in other schools	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
17. Reading educational books and journals	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
18. Writing articles for professional publication	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
19. Developing curriculum materials	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more

VIE Survey

Part I: PROFESSIONAL DEVELOPMENT ACTIVITIES

Please circle one number in each category

Professional Development Activities	Participating in this activity will help me stay up-to-date in skills and knowledge related to teaching. 1 - very unlikely 2 3 4 5 - very likely	I plan on participating in this activity in the next five years. 1 - very unlikely 2 3 4 5 - very likely	The number of times I have participated in this activity in the last two years.
20. Pursuing an advanced degree	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
21. Taking a college or university course	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
23. Participating on a building or district curriculum committee	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
24. Participating on a building or district inservice committee	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
25. Providing leadership for building activites	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
26. Being a member of a task force (state, district, etc.)	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
27. Accepting a leadership role in a non-educational organization	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
28. Traveling	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
29. Listening to instructional audio tapes	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
30. Viewing instructional video tapes	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
31. Using a simulation program on a computer	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more
32. Serving on a school visitation team for accreditation purposes	1 2 3 4 5	1 2 3 4 5	0 1 2 3 4 5 or more

VIE Survey

Part II: OUTCOMES

Please circle one number in each category

Outcomes	This outcome is _____ to me. 1 - not important 2 3 - somewhat important 4 5 - very important	If I become more up-to-date in skills and knowledge related to teaching, the chances that I will obtain this outcome will _____ -2 - greatly decrease -1 - slightly decrease 0 - not change +1 - slightly increase +2 - greatly increase	If I remain about the same as I currently am in terms of skills and knowledge related to teaching, the chances that I will obtain this outcome will _____ -2 - greatly decrease -1 - slightly decrease 0 - not change +1 - slightly increase +2 - greatly increase
1. Advancing on the salary schedule	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
2. Receiving school-based recognition	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
3. Having instructional supplies and materials available when required	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
4. Being promoted based on quality of work performance	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
5. Being assigned challenging work	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
6. Meeting the needs of students more effectively	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
7. Earning bonus pay for work judged as exemplary	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
8. Being part of a friendly faculty	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
9. Serving as resource person for staff who need assistance	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
10. Feeling an increased effectiveness as a teacher	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
11. Receiving reimbursement for courses	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
12. Receiving professional organization recognition or awards	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
13. Obtaining increased prep time	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
14. Being promoted to an administrative position	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
15. Obtaining leadership opportunities	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
16. Satisfying a desire for excellence	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
17. Securing a paid sabbatical leave	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
18. Securing extra clerical support	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
19. Serving in a mentor/master teacher role	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
20. Obtaining intellectual stimulation	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
21. Receiving praise from supervisor	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
22. Influencing school decision-making	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2

VIE Survey

Part II: OUTCOMES

Outcomes	This outcome is _____ to me. 1 - not important 2 3 - somewhat important 4 5 - very important	If I become more up-to-date in skills and knowledge related to teaching, the chances that I will obtain this outcome will _____ -2 - greatly decrease -1 - slightly decrease 0 - not change +1 - slightly increase +2 - greatly increase	If I remain about the same as I currently am in terms of skills and knowledge related to teaching, the chances that I will obtain this outcome will _____ -2 - greatly decrease -1 - slightly decrease 0 - not change +1 - slightly increase +2 - greatly increase
23. Having options for extra work	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
24. Feeling increased self-confidence	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
25. Receiving travel funds for professional development	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
26. Having pleasant physical surroundings	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
27. Being able to teach in a school with a good academic reputation	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
28. Gaining a sense of achievement	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
29. Receiving written praise from other teachers	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
30. Being asked to address teacher groups	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
31. Having the opportunity for position changes	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
32. Receiving praise from community	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
33. Being able to act as a consultant	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
34. Having attractive benefits	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
35. Receiving praise from parents	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
36. Achieving more autonomy	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
37. Receiving praise from students	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
38. Securing support for research and writing	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
39. Gaining satisfaction from serving society	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
40. Securing across-the-board increases	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
41. Having fewer supervisory duties outside the regular teaching situation	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
42. Receiving fair and just treatment from administration	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
43. Securing job protection and security	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
44. Attaining released time for curriculum development	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2
45. Controlling issues and event in work environment	1 2 3 4 5	-2 -1 0 +1 +2	-2 -1 0 +1 +2

APPENDIX D

DEMOGRAPHIC SURVEY

Please provide information about yourself by either checking the correct category or by completing the blanks.

1. Sex: 1. Male_____
   2. Female_____

2. Age at last birthday:
   1. 21-25_____
   2. 26-30_____
   3. 31-35_____
   4. 36-40_____
   5. 41-45_____
   6. 46-50_____
   7. 51-55_____
   8. 56-60_____
   9. 61-65_____
   10. Over 65_____

3. Highest educational degree completed: Bachelor's_____ Master's_____ Doctorate_____

4. Present teaching assignment (include grade level or subject area; i.e., 3rd grade self-contained or 6th grade departmentalized language arts)_____
   _____

5. How many years (include this one) have you had this assignment?_____

6. How many full years (include this one) have you been teaching? (add fractions to make full years)_____

7. How many years (include this one) have you been teaching in this school district?_____

8. How many years (include this one) have you been teaching in this school?_____

9. Enrollment of the school district:_____

10. Enrollment of the school:_____

APPENDIX E

LIST OF PROFESSIONAL DEVELOPMENT ACTIVITIES

Professional Development Activities

PD Activity	Category	Effectiv	F Partic	P Partic	E•Sum V•I
Taking a college or university course	University	4.684	4.656	4.033	3006.51
Discussing educational issues with educators in my school	Collegial	4.537	4.512	4.512	2906.03
Reading educational books and journals	Individual	4.525	4.512	4.430	2888.01
Discussing educational issues with educators in other schools	Collegial	4.307	4.160	3.725	2759.86
Attending a building-level workshop	Workshops	4.266	4.340	3.402	2735.19
Attending a district-level workshop	Workshop	4.164	4.283	3.156	2667.41
Attending a professional conference	Conferences	4.164	3.881	2.160	2664.07
Traveling	Individual	4.127	4.135	3.025	2644.08
Attending a professional association convention	Conferences	4.082	3.975	2.393	2620.53
Participating on a building or district curriculum committee	Professional	4.029	3.754	2.180	2606.43
Developing curriculum materials	Professional	4.020	3.586	2.230	2586.27
Attending a multi-district workshop	Workshops	4.004	3.693	2.168	2579.82
Observing a demonstration lesson	Collegial	3.984	3.299	1.623	2553.93
Observing other teachers teach	Collegial	3.959	3.328	1.689	2550.61
Supervising a student teacher	Collegial	3.951	3.393	1.234	2547.01
Viewing instructional video tapes	Individual	3.918	3.635	2.902	2528.37
Mentoring a less experienced teacher	Collegial	3.836	3.098	1.611	2482.43
Serving on a teacher assistance team	Collegial	3.799	3.434	1.914	2458.13
Attending local professional association meetings	Professional	3.787	4.016	3.963	2440.41
Participating on a building or district inservice committee	Professional	3.676	3.168	1.488	2397.69
Pursuing an advanced degree	University	3.611	2.492	1.184	2344.04
Providing leadership for bulding acticities	Professional	3.598	3.279	2.041	2339.33
Using a simulation program on a computer	Individual	3.492	3.139	1.533	2247.50
Listening to instructional audio tapes	Individual	3.488	3.086	1.898	2258.77
Being coached by a supervisor or colleague	Collegial	3.463	2.684	1.230	2238.23
Serving on a school visitation team for accreditation purposes	Professional	3.422	2.250	0.242	2226.74
Accepting a leadership role in a non-educational organization	Professional	3.332	3.275	1.840	2174.16
Serving in leadership roles in professional associations	Professional	3.209	2.758	1.533	2079.49
Being a member of a task force	Professional	3.037	2.033	0.566	1968.98
Making a presentation at a workshop, convention, or conference	Professional	2.959	2.336	0.791	1928.82
Writing articles for professional publication	Individual	2.586	1.447	0.152	1682.78

APPENDIX F

LIST OF OUTCOMES

OUTCOME	V • I	V	I	CATEGORY
Meeting the needs of students more effectively	22.291	4.889	4.525	Psychic Rewards
Feeling an increased effectiveness as a teacher	20.967	4.676	4.426	Psychic Rewards
Gaining a sense of achievement	20.340	4.635	4.352	Psychic Rewards
Satisfying a desire for excellence	19.574	4.430	4.357	Psychic Rewards
Feeling increased self-confidence	18.701	4.385	4.217	Psychic Rewards
Obtaining intellectual stimulation	18.537	4.213	4.336	Psychic Rewards
Being able to teach in a school with a good academic reputation	17.922	4.480	3.943	Career Status
Advancing on the salary schedule	17.520	4.426	3.926	Monetary
Receiving praise from parents	16.848	4.344	3.816	Non-mon. Recog.
Receiving praise from supervisor	16.697	4.213	3.951	Non-mon. Recog.
Securing job protection and security	16.590	4.607	3.574	Working Conditions
Being part of a friendly faculty	16.541	4.738	3.467	Working Conditions
Having instructional supplies and materials available when needed	16.172	4.635	3.480	Working Conditions
Receiving fair and just treatment from administration	16.111	4.783	3.373	Working Conditions
Receiving praise from students	15.561	4.086	3.730	Non-mon. Recog.
Having attractive benefits	15.557	4.418	3.496	Monetary
Influencing school decision-making	15.500	3.988	3.832	Career Status
Securing across-the-board increases	15.402	4.230	3.602	Monetary
Having pleasant physical surroundings	14.959	4.373	3.393	Working Conditions
Gaining satisfaction from serving society	14.799	3.914	3.717	Psychic Rewards
Serving as resource person for staff who need assistance	14.791	3.643	3.939	Increased Pro. Resp.
Receiving reimbursement for courses	14.701	4.279	3.393	Monetary
Being assigned challenging work	14.373	3.701	3.766	Increased Pro. Resp.
Attaining released time for curriculum development	14.066	4.008	3.475	Increased Pro. Resp.
Receiving praise from community	13.914	3.598	3.762	Non-mon. Recog.
Controlling issues and events in work environment	13.426	3.861	3.439	Working Conditions
Receiving travel funds for professional development	13.246	3.750	3.447	Monetary
Being promoted based on quality of work performance	12.865	3.570	3.529	Career Status
Obtaining increased prep time	12.746	3.984	3.160	Working Conditions
Receiving school-based recognition	12.709	3.344	3.676	Non-mon. Recog.
Having fewer supervisory duties outside the regular teaching situation	12.623	3.934	3.172	Working Conditions
Achieving more autonomy	12.602	3.463	3.541	Psychic Rewards

OUTCOME	V • I	V	I	CATEGORY
Serving in a mentor/master teacher role	11.898	2.980	3.799	Increased Pro. Resp.
Having the opportunity for position changes	11.426	2.975	3.684	Increased Pro. Resp.
Obtaining leadership opportunities	11.213	2.861	3.709	Increased Pro. Resp.
Being able to act as a consultant	10.545	2.623	3.861	Increased Pro. Resp.
Receiving written praise from other teachers	10.365	2.857	3.488	Non-mon. Recog.
Receiving professional organization recognition or awards	10.361	2.811	3.549	Non-mon. Recog.
Having options for extra work	9.885	2.742	3.488	Increased Pro. Resp.
Earning bonus pay for work judged as exemplary	9.844	2.955	3.234	Monetary
Securing extra clerical support	9.557	3.053	3.082	Working Conditions
Securing support for research and writing	8.631	2.275	3.582	Increased Pro. Resp.
Securing a paid sabbatical leave	8.533	2.480	3.258	Monetary
Being asked to address teacher groups	8.250	2.123	3.717	Career Status
Being promoted to an administrative position	5.598	1.598	3.279	Career Status

APPENDIX G

LIST OF INDIVIDUAL OUTCOMES

Individual Outcomes

OUTCOME	EXT INT	V MEAN
Meeting the needs of students more effectively	INTRINSIC	4.889
Being part of a friendly faculty	INTRINSIC	4.738
Feeling an increased effectiveness as a teacher	INTRINSIC	4.676
Gaining a sense of achievement	INTRINSIC	4.635
Being able to teach in a school with a good academic reputation	INTRINSIC	4.480
Satisfying a desire for excellence	INTRINSIC	4.430
Feeling increased self-confidence	INTRINSIC	4.385
Having pleasant physical surroundings	INTRINSIC	4.373
Obtaining intellectual stimulation	INTRINSIC	4.213
Influencing school decision-making	INTRINSIC	3.988
Gaining satisfaction from serving society	INTRINSIC	3.914
Controlling issues and events in work environment	INTRINSIC	3.861
Serving as resource person for staff who need assistance	INTRINSIC	3.643
Achieving more autonomy	INTRINSIC	3.463
Receiving fair and just treatment from administration	EXTRINSIC	4.783
Having instructional supplies and materials available when needed	EXTRINSIC	4.635
Securing job protection and security	EXTRINSIC	4.607
Advancing on the salary schedule	EXTRINSIC	4.426
Having attractive benefits	EXTRINSIC	4.418
Receiving praise from parents	EXTRINSIC	4.344
Receiving reimbursement for courses	EXTRINSIC	4.279
Securing across-the-board increases	EXTRINSIC	4.230
Receiving praise from supervisor	EXTRINSIC	4.213
Receiving praise from students	EXTRINSIC	4.086
Attaining released time for curriculum development	EXTRINSIC	4.008
Obtaining increased prep time	EXTRINSIC	3.984
Having fewer supervisory duties outside the regular teaching situation	EXTRINSIC	3.934
Receiving travel funds for professional development	EXTRINSIC	3.750
Being assigned challenging work	EXTRINSIC	3.701
Receiving praise from community	EXTRINSIC	3.598
Being promoted based on quality of work performance	EXTRINSIC	3.570
Receiving school-based recognition	EXTRINSIC	3.344
Securing extra clerical support	EXTRINSIC	3.053
Serving in a mentor/master teacher role	EXTRINSIC	2.980
Having the opportunity for position changes	EXTRINSIC	2.975
Earning bonus pay for work judged as exemplary	EXTRINSIC	2.955
Obtaining leadership opportunities	EXTRINSIC	2.861
Receiving written praise from other teachers	EXTRINSIC	2.857
Receiving professional organization recognition or awards	EXTRINSIC	2.811
Having options for extra work	EXTRINSIC	2.742
Being able to act as a consultant	EXTRINSIC	2.623
Securing a paid sabbatical leave	EXTRINSIC	2.480
Securing support for research and writing	EXTRINSIC	2.275
Being asked to address teacher groups	EXTRINSIC	2.123
Being promoted to an administrative position	EXTRINSIC	1.598

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